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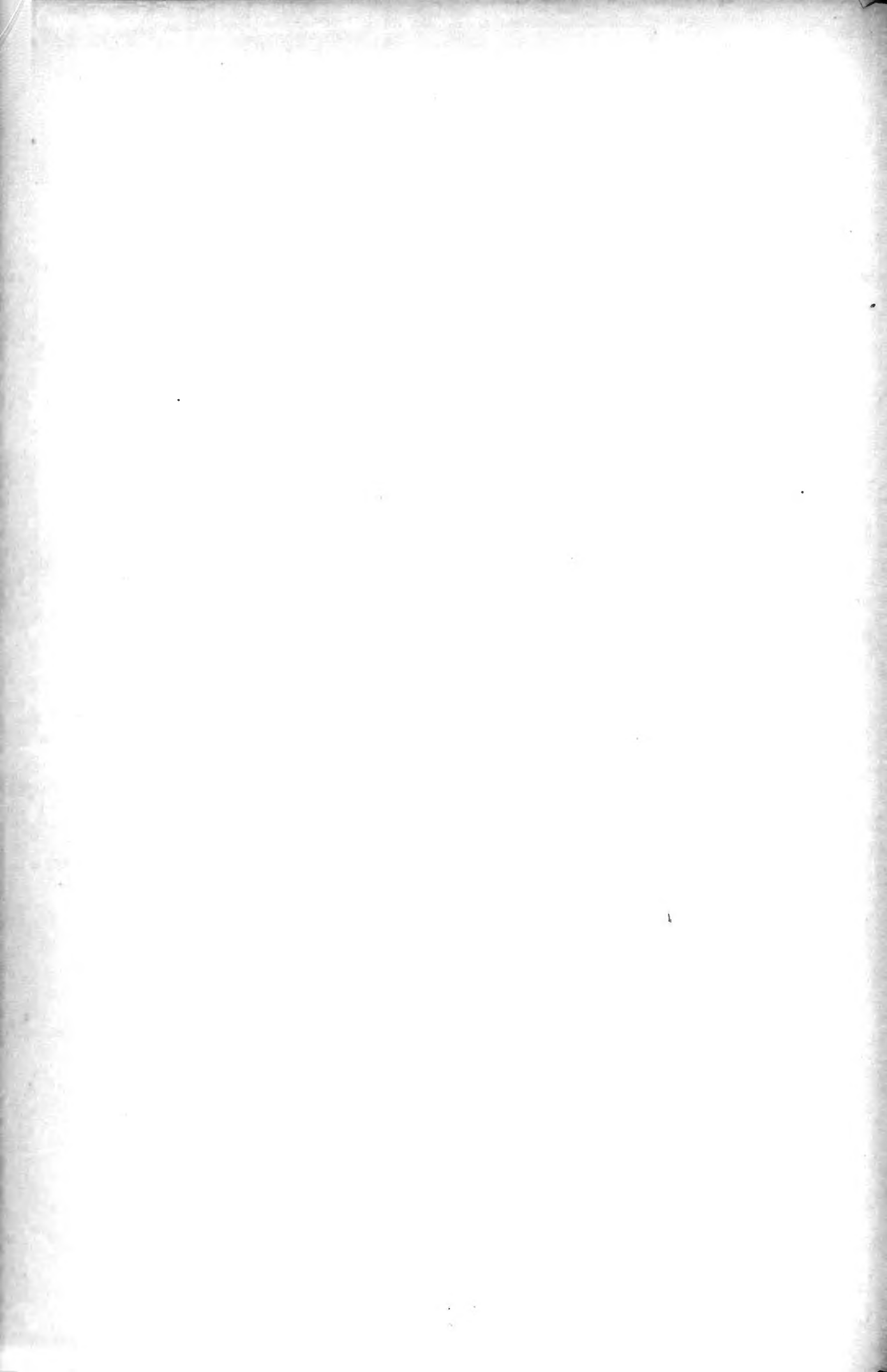
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## THE PALESTINE EXPLORATION FUND.

Died

ON THE 25TH DECEMBER, 1890,

THE ARCHBISHOP OF YORK,

*President of the Society.*

### THE YEAR 1890.

1. The chief event of the year has been the work of Mr. Flinders Petrie at Tell el Hesi. A firman having been granted for excavation within an area of ten kilometres at Khŭrbet 'Ajlân, Mr. Petrie went up from Egypt in February, and commenced the operations which have been so surprisingly successful. Tell el Hesi was the spot chosen for the excavations, and here the wall of the ancient Amorite city of Lachish was discovered, as well as later constructions believed to belong to the times of Rehoboam Asa, Jehoshaphat, Uzziah, Jotham, and Manasseh. The discoveries of pottery are of great importance. Mr. Petrie states that "we now know for certain the characteristics of Amorite pottery, of earlier Jewish, and of later Jewish, influenced by Greek trade."

2. Herr Schick's untiring and intelligent work at Jerusalem has produced many interesting and valuable results. He has reported further discoveries north of Damascus Gate, including a Greek inscription; several more rock-hewn chapels and rooms at Silwân; a very remarkable passage, with shafts, leading to the spring of Gibeon; further excavations on the eastern brow of Zion which revealed the existence of an extensive series of rock-cut chambers apparently designed for dwellings; a remarkable and elaborate tomb near Bethany; and excavations on Olivet, and at Siloah in connection with the (so-called) "second" aqueduct.

3. To Herr Schumacher the Fund has been indebted for notes on subjects of interests from Galilee, and for a description and photographs of the curious human figures cut in the rocks near Kâna.

4. Dr. Post of Beirût has contributed the first part of an essay on the sects and nationalities of Palestine, and Mr. Frederick J. Bliss, also o

Beirût, has furnished an elaborate report on Ma'lula and its dialect, derived from personal investigations on the spot.

5. Many minor observations and discoveries have been reported. Professor Hayter Lewis has sent a photograph of a squeeze of an Assyrian tablet found at Jerusalem; the Rev. J. E. Hanauer has described another visit to the curious cave at Saris; Mr. Gray Hill and Mr. W. Simpson have reported observations on a remarkable system of irrigation by underground canals, and the Rev. James Neil has communicated a paper on the same subject in connection with the pits at Nimrin; Dr. Selah Merrill has supplied an account of "birds and animals new to Palestine"; and Dr. Chaplin has reported the discovery of an inscribed Hebrew weight, believed to belong to the period of 800 B.C., and of a stone mask from Er Râm.

6. Apart from actual discoveries, valuable literary contributions to the *Quarterly Statement* have been made by Major Conder, R.E., the Lord Bishop of Salisbury, the Rev. W. F. Birch, the Rev. H. Brass, the Rev. J. H. Cardew, Mr. George St. Clair, Mrs. Finn, and others.

7. A manuscript of a journey to Tadmor in 1691 having been placed in the hands of the Executive Committee, they thought it well to print it. It contains copies of many inscriptions in Greek and in the Palmyrene character.

8. The publication of the meteorological observations taken under the auspices of the Fund at Saron and Jerusalem, has been continued by Mr. James Glaisher, the indefatigable Chairman of the Fund.

9. The new publications of the year (besides the *Quarterly Statements*), have been—

"Palestine Under the Moslems," by Guy le Strange.

"Ajlûn Within the Decapolis," by G. Schumacher.

The New Map of Palestine.

## NOTES AND NEWS.

Everyone interested in the Archæology of Palestine will regret to learn that the famous "Siloam inscription" has been cut out of its place in the rock tunnel and carried away. It was broken in removal, and the fragments are reported to have been sold to a Greek of Jerusalem. On receiving this intelligence the Executive Committee forwarded to Hamdi Bey a resolution expressing their regret, and the hope that immediate steps will be taken to secure the fragments.

Fortunately an accurate copy of this inscription has been made and published by the Fund. The occurrence shows how valuable the work done by the Fund has been in preserving records of monuments which are in daily danger of being destroyed. The Rev. W. Ewing, of Tiberias, reports that the gateway of the small synagogue at Kefr Birim has disappeared, but that the stone bearing an inscription has been preserved.

The manufacture of "Antiques" in Palestine seems to be going on with renewed energy. Another "Siloam inscription" has been produced, and copies of it sent to several persons in England. It is a clumsy forgery in seven lines of Phœnician characters, which appear to have been transliterated from an original in square Hebrew.

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Herr Schick reports a find of *shekels* at Hebron, which were purchased by a resident at Jerusalem; but adds, "a good many false ones are in circulation."

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The Committee have engaged the services of Mr. Frederick Jones Bliss, B.A., son of the President of the American College, Beirût, to continue the excavations at Tell el Hesi (Lachish), begun by Mr. Flinders Petrie last spring. The Sublime Porte have renewed the Firman. Subscriptions for this object are urgently needed.

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Excavations in search of water are being made in and around Jerusalem under government auspices. Herr Schick states that the people employed for this work "have a man, a Greek, who understands where water is to be found. He puts his ear to the ground in order to hear the gurgling. First they dug outside the Damascus Gate, then in the neighbourhood of the Tombs of the Kings, and then at two places inside the Damascus Gate, but without success." Herr Schick's latest note on the subject will be found on page 20.

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It may be well to mention that plans and photographs alluded to in the reports from Jerusalem and elsewhere cannot all be published, but all are preserved in the offices of the Fund, where they may be seen by subscribers.

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An account of the excavations at Tell el Hesi (Lachish) and places visited in Palestine by Mr. Flinders Petrie will be ready in a few days. It contains 10 plates and other drawings illustrating the articles found. Price to Subscribers to the Fund, 6s. 6d., in paper covers.

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The first volume of the "Survey of Eastern Palestine," by Major Conder has been issued to subscribers. It is accompanied by a map of the portion of country surveyed, special plans, and upwards of 350 drawings of ruins, tombs, dolmens, stone circles, inscriptions, &c. The edition is limited to 500. The first 250 subscribers pay seven guineas for the three volumes; subscribers to the "Survey of Western Palestine" are privileged to have the volumes for this sum. The price will be raised, after 250 names are received, to twelve guineas. The Committee are pledged never to let any

*copies be subscribed under the sum of seven guineas.* Mr. A. P. Watt, 2, Paternoster Square, is the Sole Agent. The attention of intending subscribers is directed to the announcement after Maps and before Contents of this number.

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Mr. H. Chichester Hart's "Fauna and Flora of Sinai, Petra, and the Wâdy 'Arabah" is almost ready, and will be sent out to subscribers in a few days. All the Illustrations for M. Ganneau's volume are ready, and it is hoped they will be issued with the letterpress before the end of the year.

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The following gentlemen have kindly consented to act as Honorary Local Secretaries :

Rev. John Howell, for Mountain Ash.  
 W. E. S. McGregor, for India.  
 Rev. J. L. Thomas, M.A., for Briton Ferry.  
 Joseph Hall, Esq., for Swansea.  
 Rev. J. H. Skewes, for Liverpool.  
 J. B. Davies, Esq., Hafod y Coed, for Llanfairfechan.  
 Rev. W. Vaughan Jones, for Wrexham.

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The Committee have to acknowledge with thanks the following donations to the Library of the Fund, viz. :—

From Capt. Hankey, R.N., "The Antiquities of Palmyra," (1696).  
 From the Author, "Wine and Oil from Emmanuels Land," by Rev. James Ormiston.  
 From the Author, "With the Beduins," by Gray Hill.

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The Committee have added to their list of publications the new edition of the "History of Jerusalem," by Walter Besant and E. H. Palmer (Bentley & Son). It can be obtained by subscribers, carriage paid, for 5s. 6d., by application to the Head Office only. The "History of Jerusalem," which was originally published in 1871, and has long been completely out of print, covers a period and is compiled from materials not included in any other work, though some of the contents have been plundered by later works on the same subject. It begins with the siege by Titus and continues to the fourteenth century, including the Early Christian period, the Moslem invasion, the Mediæval pilgrims, the Mohammedan pilgrims, the Crusades, the Latin Kingdom, the victorious career of Saladin, the Crusade of Children, and many other little-known episodes in the history of the city and the country.

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The books now contained in the Society's publications comprise an amount of information on Palestine, and on the researches conducted in the country, which can be found in no other publications. It must never be forgotten that no single traveller, however well equipped by previous knowledge, can compete

with a scientific body of explorers, instructed in the periods required, and provided with all the instruments necessary for carrying out their work. The books are the following (*the whole set can be obtained by application to Mr. George Armstrong, for £2, carriage paid to any part in the United Kingdom only*):—

By Major Conder, R.E.—

- (1) "Tent Work in Palestine."—A popular account of the Survey of Western Palestine, freely illustrated by drawings made by the author himself. This is not a dry record of the sepulchres, or a descriptive catalogue of ruins, springs, and valleys, but a continuous narrative full of observations upon the manners and customs of the people, the Biblical associations of the sites, the Holy City and its memories, and is based upon a six years' experience in the country itself. No other modern traveller has enjoyed the same advantages as Major Conder, or has used his opportunities to better purpose.
- (2) "Heth and Moab."—Under this title Major Conder provides a narrative, as bright and as full of interest as "Tent Work," of the expedition for the *Survey of Eastern Palestine*. How the party began by a flying visit to North Syria, in order to discover the Holy City—Kadesh—of the children of Heth; how they fared across the Jordan, and what discoveries they made there, will be found in this volume.
- (3) Major Conder's "Syrian Stone Lore."—This volume, the least known of Major Conder's works, is, perhaps, the most valuable. It attempts a task never before approached—the reconstruction of Palestine from its monuments. It shows what we should know of Syria if there were no Bible, and it illustrates the Bible from the monuments.
- (4) Major Conder's "Altaic Inscriptions."—This book is an attempt to read the Hittite Inscriptions. The author has seen no reason to change his views since the publication of the work.
- (5) Professor Hull's "Mount Seir."—This is a popular account of the Geological Expedition conducted by Professor Hull for the Committee of the Palestine Fund. The part which deals with the Valley of Arabah will be found entirely new and interesting.
- (6) Herr Schumacher's "Across the Jordan."
- (7) Herr Schumacher's "Jaulân."—These two books must be taken in continuation of Major Conder's works issued as instalments of the unpublished "Survey of Eastern Palestine." They are full of drawings, sketches, and plans, and contain many valuable remarks upon manners and customs.
- (8) "The Memoirs of Twenty-one Years' Work."—This work is a popular account of the researches conducted by the Society during the past twenty-one years of its existence. It will be found not only valuable in itself as an interesting work, but also as a book of reference, and

especially useful in order to show what has been doing, and is still doing, by this Society.

- (9) Herr Schumacher's "Kh. Fabil." The ancient Pella, the first retreat of the Christians; with map and illustrations.
- (10) Names and Places in the Old and New Testament and Apocrypha, with their modern identifications, with reference to Josephus, the Memoirs, and *Quarterly Statements*.
- (11) Besant and Palmer's "History of Jerusalem," already described.
- (12) Northern 'Ajlûn "Within the Decapolis," by Herr Schumacher.

To the above must now be added Mr. Henry A. Harper's "The Bible and Modern Discoveries," a cheap edition of which is in the press—price to the public, 7s. 6d.; to subscribers to the Fund, 5s. Mr. Guy le Strange's important work "Palestine under the Moslems," price to the public, 12s. 6d.; to subscribers to the Fund, 8s. 6d.; and Mr. Flinders Petrie's account of his excavations at Tell el Hesi (Lachish), price to the public 10s.; to subscribers to the Fund, 6s. 6d.

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The work of Mr. Guy le Strange on "Palestine under the Moslems" was published in April, 1890.

For a long time it had been desired by the Committee to present to the world some of the great hoards of information about Palestine which lie buried in the Arabic texts of the Moslem geographers and travellers of the Middle Ages. Some few of the works, or parts of the works, have been already translated into Latin, French, and German. Hardly anything has been done with them in English, and no attempt has ever been made to systematise, compare, and annotate them.

This has now been done for the Society by Mr. Guy le Strange. The work is divided into chapters on Syria, Palestine, Jerusalem, and Damascus, the provincial capitals and chief towns, and the legends related by the writers consulted. These writers begin with the ninth century and continue until the fifteenth. The volume contains maps and illustrations required for the elucidation of the text.

The Committee have great confidence that this work—so novel, so useful to students of mediæval history, and to all those interested in the continuous story of the Holy Land—will meet with the success which its learned author deserves. The price to subscribers to the Fund is 8s. 6d.; to the public, 12s. 6d.

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The new map of Palestine, so long in hand, is now ready. It embraces both sides of the Jordan, and extends from Baalbek in the north to Kadesh Barnea in the south. All the modern names are in black; over these are printed in red the Old Testament and Apocrypha names. The New Testament, Josephus, and Talmudic names are in blue, and the tribal possessions are tinted in colours, giving clearly all the identifications up to date. It is the most comprehensive map that has been published, and will be invaluable to universities, colleges, schools, &c.

It is published in 21 sheets, with paper cover; price to subscribers to the Fund, 24s., to the public, £2. It can be had mounted on cloth, rollers, and varnished for hanging. The size is 8 feet by 6 feet. The cost of mounting will be extra (*see Maps*).

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The third edition of Mr. Henry A. Harper's book, on "The Bible and Modern Discoveries," is already sold out, and a new and cheap edition will be ready in February. The work is an endeavour to present in a simple but yet connected form the Biblical results of twenty-two years' work of the Palestine Exploration Fund. The writer has also availed himself of the discoveries made by the American Expeditions and the Egyptian Exploration Fund, as well as discoveries of interest made by independent travellers. The Bible story, from the call of Abraham to the Captivity, is taken, and details given of the light thrown by modern research on the sacred annals. Eastern customs and modes of thought are explained whenever the writer thought they illustrated the text. To the Clergy and Sunday School Teachers, as well as to all those who love the Bible, the writer hopes this work will prove useful. He is personally acquainted with the land, and nearly all the places spoken of he has visited, and most of them he has moreover sketched or painted. The work is illustrated with many plates, and a map showing the route of the Israelites and the sites of the principal places mentioned in the sacred narratives. It should be noted that the book is admirably adapted for the school or village library.

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Branch Associations of the Bible Society, all Sunday School unions within the Sunday School Institute, the Sunday School Union, and the Wesleyan Sunday School Institute, will please observe that by a special Resolution of the Committee they will henceforth be treated as subscribers and be allowed to purchase the books and maps (by application only to the Secretary) at reduced price.

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The income of the Society, from September 22nd to December 19th inclusive, was—from annual subscriptions and donations, including Local Societies, £126 3s. 0d.; from donations for excavations, £29 12s. 6d.; from all sources, £589 19s. 7d. The expenditure during the same period was £642 11s. 7d. On December 19th, the balance in the Bank was £785 17s. 0d.

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Subscribers are begged to note that the following can be had by application to the office, at 1s. each:—

1. Index to the *Quarterly Statement*, 1869–1880.
2. Cases for Herr Schumacher's "Jaulân."
3. Cases for the *Quarterly Statement*, in green or chocolate.
4. Cases for "Abila," "Pella," and "'Ajlûn" in one volume.

Early numbers of the *Quarterly Statement* are very rare. In order to make up complete sets, the Committee will be very glad to receive any of the following numbers :—

No. II, 1869 ; No. VII, 1870 ; No. III, 1871 ; January and April, 1872 ; January, 1883, and January, 1886.

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It having again been reported to the Committee that certain book hawkers are representing themselves as agents of the Society, the Committee have to caution subscribers and the public that they have no book hawkers in their employ, and that none of their works are sold by itinerant agents.

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While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee wish it to be distinctly understood that by publishing them in the *Quarterly Statement* they neither sanction nor adopt them.

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Subscribers who do not receive the *Quarterly Statement* regularly are asked to send a note to the Secretary. Great care is taken to forward each number to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

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The only authorised lecturers for the Society are—

- (1) The Rev. Henry Geary, Vicar of St. Thomas's, Portman Square. His lectures are on the following subjects, and all illustrated by original photographs shown as "dissolving views" :—

*The Survey of Western Palestine, as illustrating Bible History.*

*Palestine East of the Jordan.*

*The Jerusalem Excavations.*

*A Restoration of Ancient Jerusalem.*

- (2) The Rev. Thomas Harrison, F.R.G.S., Member of the Society of Biblical Archaeology, 38, Melrose Gardens, West Kensington Park, W. His subjects are as follows :—

(1) *Research and Discovery in the Holy Land.*

(2) *In the Track of the Israelites from Egypt to Canaan.*

(3) *Bible Scenes in the Light of Modern Science.*

- (3) The Rev. Charles Chidlow, M.A., Caio Vicarage, Llandilo :—

*Recent Discoveries in Bible Lands.*

## HERR SCHICK'S REPORTS.

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### I

#### CHRISTIAN TOMBS IN JERUSALEM.

INSIDE the town, east of the new gate of Jerusalem, the Franciscan Convent is again clearing a place for new buildings. On removing the earth, two large tombstones were found, of which I enclose drawings. They were not *in situ*, but lying without order in the earth or rubbish. One has a prismatic form, is 5 feet 2 inches long and 1 foot 6 inches high; on the base is a border 2 inches high, so that each of the sloping sides measures 1 foot 8 inches. On these sloping sides are crosses (one on each side) near the same end. They are not exactly of the same form, so I give the picture of both. They are in slight relief, indicating probably the order of the knight buried underneath.

The other stone has a square or cubic form. It is 5 feet 11 inches long, 1 foot 7 inches wide, and 1 foot 2 inches high. On the top face, the edges round about have a slant of  $3\frac{1}{2}$  inches. On this upper surface there is a plain cross in slight relief. I found no writing nor any other marks on these two stones, they are worked nicely, and are soft *mezzeh*. They were found south of the pieces of old wall discovered some time ago.

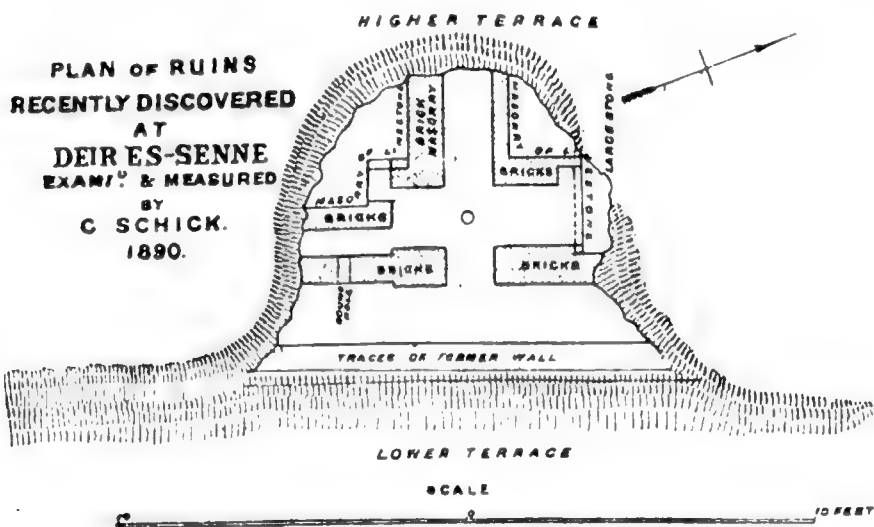
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### II

#### ANCIENT BATH AND CISTERN NEAR BETHANY.

A fellah of the Village of Silwân came and told me that he had made some excavations in his vineyard, and found remarkable remains of brick masonry. So I went with him, and he took me towards Bethany; but on the height between Jebel el Tur and Baten el Hawa, where the Bethany road bends eastwards, we went straight on (*see* Ordnance Survey Plan of Jerusalem, scale  $\frac{1}{10000}$ ), and on the east slope of the Mount of Offence, downwards, for the most part, in a southerly direction, as far as the Contour 2,129, where, a little more to the south and further down, I observed a pool hewn in the rock, which is shown on the map but the word "pool" omitted. Further down, at the Contour 2,019, we came to the vineyard of the man. Near the cistern there he had his hut, lodging in it during the summer months; and on the side of it, towards a declivity, he had made some excavations in search of hewn stones, which are found everywhere about in the soil. There are on the top or brow of

the present declivity the remains of a former wall made of hewn stones ; west of this an empty space or path, about 2 feet wide ; and west of the latter some curious masonry made of bricks, &c., of which I enclose plan. These brick walls are 2 feet 6 inches high, the bricks are of rather small size, hard—not brittle—and without any mark. Before the bricks were used there was some masonry of hewn limestone, and everywhere the stones, which are of rather small size, were cased with bricks. This seems to indicate that the fabric was intended for fire and was probably meant for a bath—the fire to be made in the most spacious part, the fuel being put in by the door, the round hole regulating the draught. The whole was covered with flagging stones, which had become burned by the fire just as the hot Turkish baths do to-day in this country. But it puzzled me to find an indication that ever fire was used.



The brick masonry looks rather new and unused. On the north side there is a large hewn stone, no more *in situ*, but lying there where the brickwork was done, not blackened in the least. In the centre point they found a piece of a slender marble pillar, 4 inches in diameter and 1 foot long, without any base. This place and the vineyards round about is called *Deir Essenna*, which may perhaps be translated *Convent of the Year* ; but this implies no meaning, so I rather think it has to be translated—the “Convent (or lodging place) of the Essenes,” the Jewish sect of which Josephus speaks, “Bello,” 2, 8, 2-13. My guide (the proprietor of the ground) told me there was formerly here a village, perhaps as large as Silwân at this day, but there came a plague amongst its inhabitants, so that they all died out, and this ground was then allotted to the people of Silwân. During my examinations and measurings another fellah came from the neighbouring vineyard, telling me the same thing, and stating that wherever they dig they find masonry or hewn stones. He led me a few minutes eastwards, where on the Ordnance Survey Plan stands the word “Cave,” and here I found a remarkable cistern. The external opening looks like that of one of the caves of which there are so many in this district ; but if one goes in he passes downwards from

one to another, and finally reaches a very large cistern, of which I give plan and section. It is entirely hewn into the rock, but for keeping water and holding the cement laid out round about with masonry of a few feet thick, as shown in the plan and section.

This wall casing or lining does not go up to the rock roof, but only to some height about 10 feet lower than the rock ceiling, so that a man can walk on the top of the wall round about. In the roof are two mouths cut in the rock, but on the top, covered up, and not observable in the vineyard. The size and form of the cistern is rectangular, 73 feet long, 49 feet wide. The height I could not exactly ascertain, as there is on the bottom a great accumulation of stones, earth, and dung. The cistern is very often the resort of cattle, sheep, and goat herds, and this accumulation is certainly 8 or 10 feet thick, so that the entire height would be about 55 feet, taking 45 feet of water, if restored again. In the southern wall there is a breach, by which men and animals can go down to the bottom of the cistern. In the masonry of the east and north walls are several holes broken, on a level with the present bottom of the cistern, so that one may see the rock behind. These seem to have been made and used as fire-places, as they are so blackened by smoke, and the man said: the shepherds also put sick animals there, in order that they may not be molested by the others; even the shepherd himself does so sometimes.

This cistern is called "Boberich," which may be translated "large" or "grand." If the Essenes lived round about here they had water enough for their many washings.

### III.

#### MORE DISCOVERIES AT SILWÂN.

When watching the excavation work at the so-called "second" aqueduct people told me there was discovered on the ground of the Russians some interesting writing, so I went there.

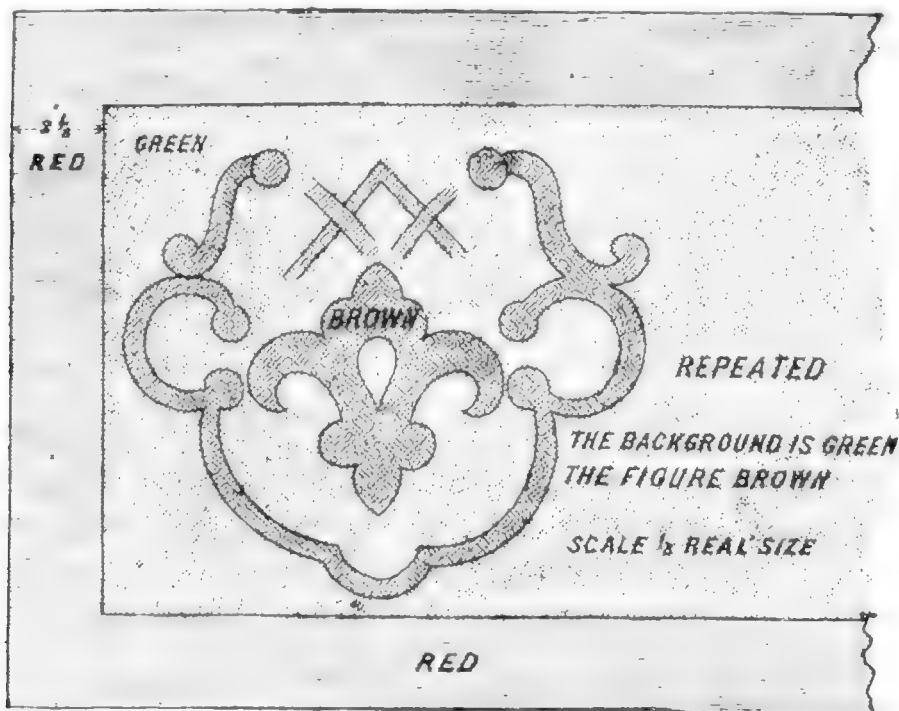
It is on the Scarped Rocks, at the north end of the village, on the spot where Sir Charles Wilson's map of Jerusalem,  $\frac{1}{25000}$ , mentions ancient tombs. Where the letter C stands the rock is projecting. This projecting part is of considerable height, and at the upper part a room is excavated in it, having a window on the north side. This window served also as the door, and to get up to it a ladder is required. Below, near the surface of the ground, is a passage of about a man's height, formed by two recesses, one from the east side and one from the north side, meeting inside. They are hewn in rock, only the corner being left for support. In the floor of this short passage is the mouth of a small cistern.

Opposite this rock projection, 20 feet distant, is another, not so high. The space between has a rock flooring, which apparently once formed a

room or chapel. The north wall, which was of masonry, has now disappeared; the three other sides are rock scarps, in which are small holes, for the poles of the roofing. In the south-eastern corner there still stands a piece of masonry, which once supported the roof.

Some months ago the ground in front of this rock was bought by the Russian Archimandrite, who erected a boundary wall, and then made some excavations, especially between the two projecting parts. On the east wall of the room or chapel described three recesses were found. One is small and of no importance; another, which is opposite, is a semi-circular excavation in the rock, like a Moslem "Mihrab," and the one in the middle is square in form, 2 feet 8 inches high, 1 foot 3 inches wide, and about 10 inches deep. At the middle of the height are grooves on each side, as if for a shelf. This wall had been painted over in "fresco." Between the centre recess and the semi-circular one the painting represents a square frame in deep red, the space enclosed is dark blue, and on it are seven lines of fine writing, done in white paint. The lines are not in a horizontal but a vertical position, the greater part no longer legible, but some are still clear, and of these I made a copy, which I now forward. The letters resemble Hebrew, although the whole arrangement seems to be Christian.

South of the centre recess, and in the same line with the inscription frame, that frame is continued. It is red, and on the enclosed surface, which is green, figures are painted in brown, one of which I copied. I could not find any cross here, but high up on the rock,



on the west side of the above-mentioned window or door, a plain cross of two strokes, without any ornamentation, about 8 inches high, is hewn into the rock. I could find no opening of a tomb, but there may be such in the middle of the flooring where a heap of earth is lying.

2. When leaving this place I was taken to a house in the upper part of the village, and shown an inscription engraved slightly in the stone

on the side of a window. They had before brought me a squeeze of this, very imperfectly done, as it seemed to me, and I now compared the squeeze with the stone, going on letter by letter, and made it distinct and corrected it with a brush in black water-paint. It was too high to make a better squeeze, as I had no ladder, and there was nobody on the spot. Also I supposed it probable that Monsieur Ganneau may have long ago copied the inscription, and that hence it is not necessary to take much pains about it. However, I enclose here



the squeeze-copy, such as it is, and hope it will be good enough for judging whether Mons. Ganneau has copied it already or not, and also whether it is of any value or not. To me it seemed to have been once a tombstone.<sup>1</sup>

#### IV.

##### THE "SECOND" SILOAH AQUEDUCT.

September 29th, 1890. In April and May last, I made three shafts in search of the second aqueduct with comparatively negative results, which I fully reported in the first week of June (see *Quarterly Statement*, 1890, p. 257). Since then I have made three more shafts with better results.

In order to go on more safely, I first opened again the shaft C, which was made four years ago (see *Quarterly Statement*, 1886, p. 197). This shaft was then marked "C." In the accompanying plan and section I now mark it "4," as it is the fourth made this year.

When coming down again to the rock-cut aqueduct (the "second"), my intention was to clear it out northwards (towards the Virgin's Spring) and follow wherever it may go. As it had no covering stones the earth was so hard that the workmen could clear it out without frames. When it was cleared for a length of 23 feet it became difficult to go on further, and so I made another shaft (the fifth) marked 5 on the plan, and on

<sup>1</sup> This appears to be the writing I described in 1872 which is written in vertical lines and seems to be 6th century Syriac.—C. R. C.

coming down into the rock-cut channel it was found that there was a door, and that the channel was covered with rock, *i.e.*, from this point it was seen to be a rock-cut tunnel  $6\frac{1}{2}$  feet high (in parts even more), at the bottom only from 8 inches to 15 inches wide, at or near the top always about 2 feet wide, in several parts more, so that the sides are slanting. The direction is rather in a crooked line, as the adjoining plan will show.

When cleared out for 17 feet a rock ledge was met, 2 feet high and 7 inches thick, standing across the channel, in order, apparently, to enable the water to be stored when necessary. There is a round hole in the ledge near the bottom, and when this was opened the water would run out. A few feet further north there is, on the east side, a door-like opening, and rock-cut steps lead down to the channel, or the water. About 20 feet further north is a similar door and steps, also on the eastern side. As it was difficult to go further on with the clearing, we opened another shaft over these last steps, marked in plan "6" (being the sixth). As according to the drawing in Sir Charles Wilson's plan of Jerusalem ( $\frac{1}{25000}$ ), the present aqueduct (now in use) must be very near to this "second" one.

I hoped we might come to it, *i.e.*, to a masonry wall, which, when broken through, would bring us to the present aqueduct, and my original idea was that this "second" one is simply the original continuation of the real one, the lower part of which latter was afterwards hewn westward through the mountains, and this lower piece abandoned. But it is now clear that this was not the case. The level of the "second" is already here a few feet higher than the other; and having passed the "bend" without meeting the aqueduct, and still going northward, it is evident that the "second" is entirely another one! About 25 feet from the last steps there appears to be a door in the western side, and over it a kind of shaft, shut up with a large stone. The rock having here also some clefts, we intended to make a shaft here, but as I had no time for fixing the exact site over it, the workpeople went farther on, and thus found the passage shut up by a wall, consisting of square hewn stones laid dry, without mortar, so that this being removed it was found that here also the passage has a door, behind which (north) the rock roofing had an end. So I resolved to make here a shaft, being already in the ground of the the neighbour who does not make so much difficulty as the proprietor of the ground in which we made the shafts 4, 5, 6. By guidance of the bearings with the compass in the passage, and then on the surface, I fixed the point, and people are now digging the shaft. Of the further results I will report in due time.

At shaft 6, over the lower steps, there is laid a very large covering stone on the rock shoulders, as shown in the section. It is most remarkable that two aqueducts were made so near to one another, running parallel, and at no great difference of levels. Both cannot have been made at one and the same time, and the question may be asked which is the older one? To me it seems the so-called "second" one is the oldest, which brought the water only to the lower or large pool, the present



To Pool  
of Siloam Shaft

ROCK-CUT TUNNEL

Door

C

Garden

G a r

Garden wall

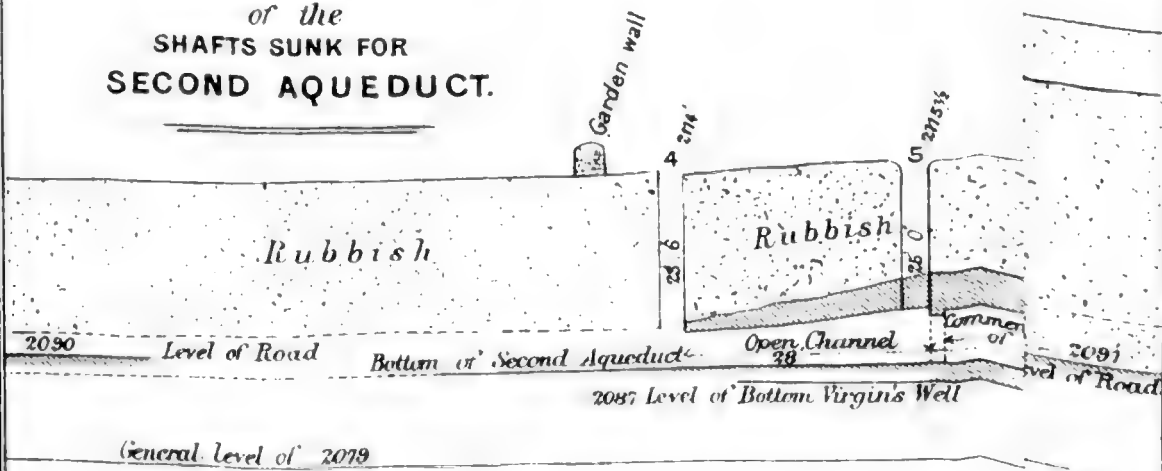
To the Pool

Garden wall

To the Village of Siloam

I.  
Plan of  
SECOND AQUEDUCT  
AND NEIGHBOURHOOD.  
by Baurath C. Schick.  
April to November, 1890.

II.  
Section & Elevation  
of the  
SHAFTS SUNK FOR  
SECOND AQUEDUCT.

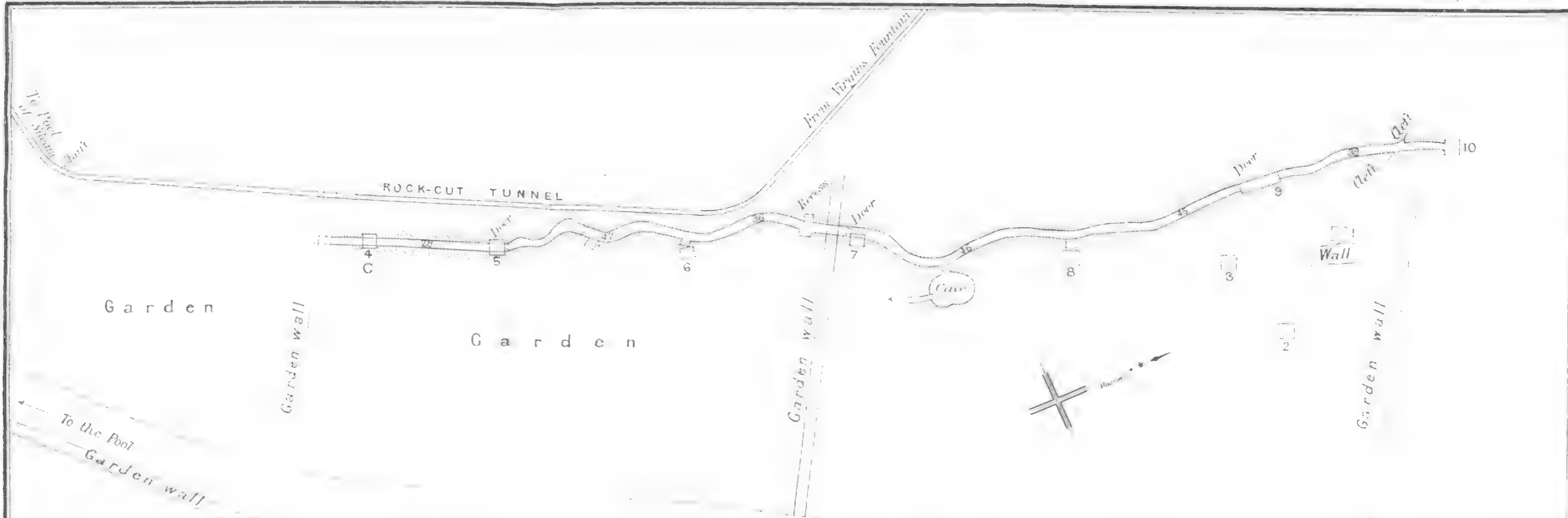


General level of 2079

Feet 10 5 0 10 20 30 40

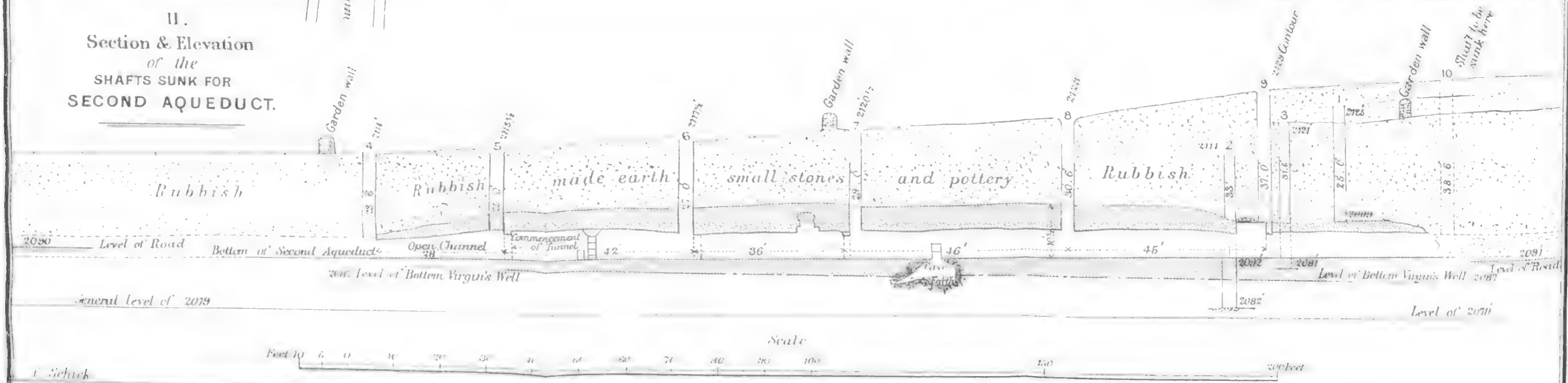
C. Schick

Geog. Estab.



I.  
Plan of  
SECOND AQUEDUCT  
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by Baurath C. Schick.  
April to November, 1890.

II.  
Section & Elevation  
of the  
SHAFTS SUNK FOR  
SECOND AQUEDUCT.



"Birket Hamra"—"Old Pool" on Sir Charles Wilson's map. It is remarkable that the present one comes so much eastward out from the mountains, running parallel with the "second" in this region and then going again westwards through the mountain. What may have been the reason? These (seemingly) unnecessary bendings made the aqueduct 225 feet longer, and hence caused much more labour and expense, so it must have had a reason. Further, the decline of the "second" one is rather large, whereas the present one is nearly level, with a very slight descent, so that if the decline should be found further on, as it has been found in the part already excavated, it will come out only a few feet below the present surface, round the entrance to the Virgin's Spring, at a level of about 2,116, whereas the bed of the spring is 29 feet below.<sup>1</sup>

From the translation of the inscription found near its lower end it is always believed that two parties of workmen have done the present aqueduct, beginning at the same time at both ends, and meeting in the middle. If this was so, then during that time the water must have had another outflow, and been brought up probably by wallings to a higher level, for running off; otherwise the water would have followed the workpeople and drowned them.

I may also notice that the part of this "second" aqueduct, now excavated, is very similar to that near Bir Eyûb, excavated by Sir Charles Warren.

On the levels mentioned in this report, and entered in the adjoining plan and section, I have to remark that only to a certain degree can they be depended upon, as at my levellings I had not a fixed and sure starting-point. I wished to take the bench-mark on one of the lowest houses in the village of Silwân as the starting-point, but unhappily this bench-mark is no longer visible, as the wall of a new house has been built in front of it.

So, as I did not know the level of the bench-mark, I took as a starting-point the inserted level, 2,078, in the road going over from the aqueduct side to the village. But always in winter the surface, even in the street or road, becomes altered by the heavy rains, so my starting-point with the level, 2,079, is only approximate. I think in future to take the bed of the Virgin's Spring as the starting-point, and, if necessary, correct the others accordingly. Finally, I have to remark that the part of the present or "famous" aqueduct, running parallel with the part of the "second" now excavated, is given in Lieutenant Conder's drawing quite straight, as I have entered it in my plan; but in Sir Charles Warren's Map of Jerusalem the lines form a slight bow, as I have shown by dotted lines in my plan. It is now quite clear that the water of the

<sup>1</sup> This aqueduct appears already to have been traced to a level which precludes the idea that it came from the Virgin's Spring. I expect it was connected with the surface channels on Ophel which I described in 1872, but which were afterwards quarried away. Possibly it was a drain. It is, however, interesting to follow out. I see no reason why it should be older than the Siloam aqueduct to the Virgin's Pool.—C. R. C.

spring came out originally on a higher level, so that the "second" aqueduct could carry it off, and that when the present aqueduct was made it was found necessary, in order that it might be hidden, to lay it lower, and hence the necessity for a new canal. But the whole was shut and filled up so that no enemy could see or find either spring or aqueduct.

*November 18th, 1890.*—At the end of September I reported on the excavations at the "second" Siloah aqueduct, done by order of the Committee. To-day I have the honour to report on the further progress of this work, illustrating it by the accompanying complete plan and section. The drawings sent with the first report only show the state of things so far as known at that time; and hence are incomplete. Those I send now represent the whole work done during this year, and the result thereof.

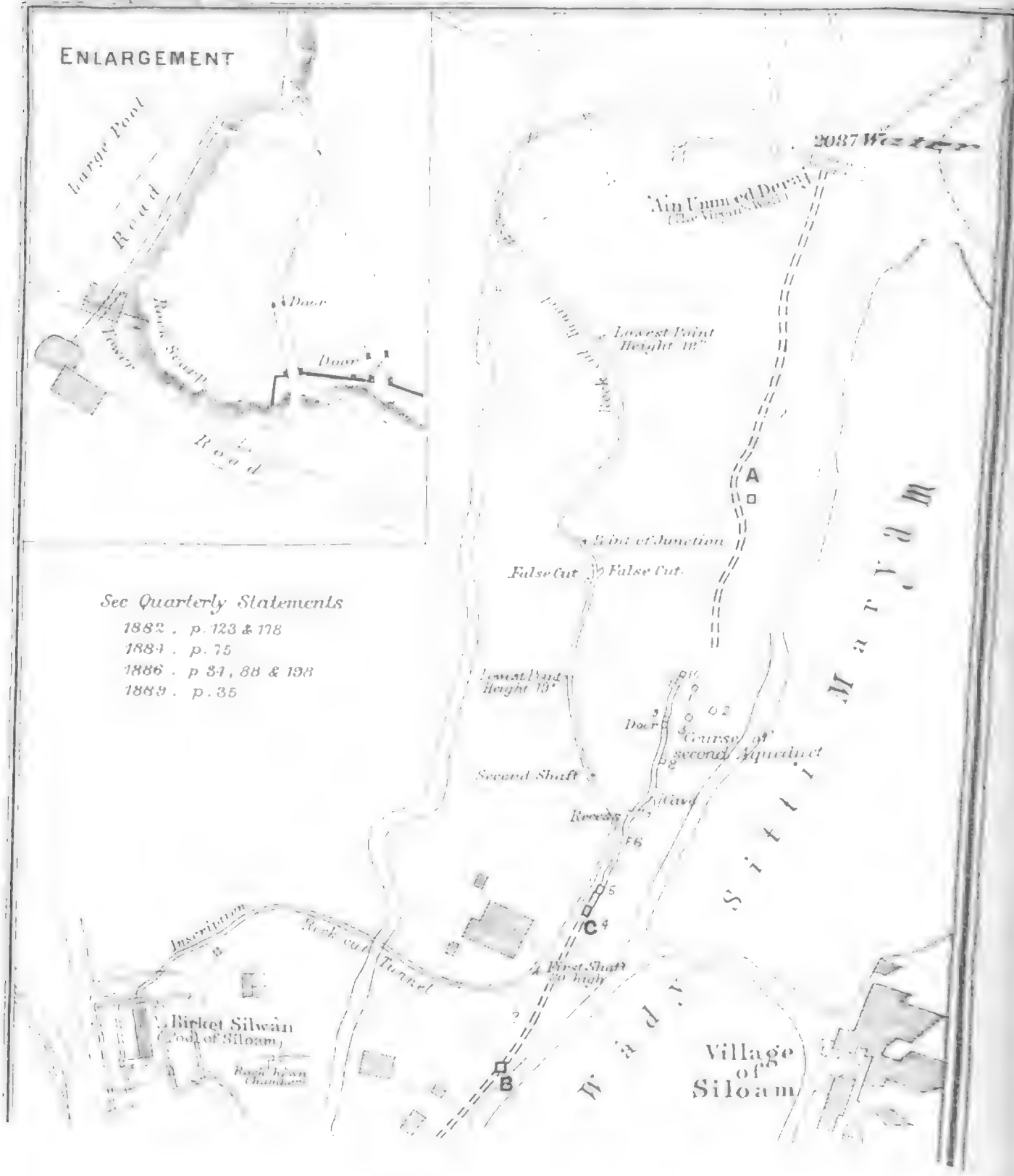
*Explanation:*—The shafts which were made I numbered 1 to 10 according as they were made one after the other. Nos. 1, 2, and 3 were made in April, as I fully reported at the time. Then 4, 5, and 6 were made successively, and reported in my last, with what had been found up to that time—*i.e.*, that the aqueduct was already cleared to the end of the piece of ground, and shaft 7 had to be opened in order that we might be enabled to go on with the work. This shaft was made beyond the boundary wall, being already on the ground of the neighbour, who had no objection if six or eight francs backsheesh were paid for each. The shaft 7 was 29 feet deep, coming only a little on the side (as the plan shows). The aqueduct has here a kind of door, and runs more and more away from the present or acting one; so all hope that it afterwards enters it has faded. Also the door towards west, of which I spoke in my last, proved to be no arm or branch of a tunnel, but simply a recess like the one opposite. When the passage was cleared northwards for about 20 feet from the middle of the shaft on the eastern side, a hole was found, which led downwards to a sort of cave with a good deal of earth in it. It was cleared to some depth, when seeing a cleft like a channel running from it southwards (*see drawings*), we discontinued the work in it. This cave is partly natural and partly artificial. From its lower position it can never have been a tributary to the aqueduct, but rather have been a ventilator or water distributor, when there was a great stream. As the opening to it is several inches above the bottom of the aqueduct, when the stream of water was low none would go through it (*see section*). Here the aqueduct makes a bend, taking a direct northerly course, its previous direction being north-easterly. At 46 feet from the last shaft (7) another shaft or hole in the rock on the top of the aqueduct appeared, and I resolved to open it, in order that the work might go on better, as when bringing all *débris* and stones out by shaft 7 the advance was very slow. Not being quite well, I was not inclined to take the risk of going down, so my substitute took the bearing and fixed the point on the surface where the shaft had to be made. It proved afterwards to come some feet too much east, which had, however, some advantage, namely, to enable the steps



PLAN OF THE AQUEDUCTS AND CONNECTIONS  
RECENTLY DISCOVERED AND SUPPOSED CONTINUATION OF COURSE.

Enlargement of the Plan of the Aqueducts and Connections

ENLARGEMENT



See Quarterly Statements

- 1882 . p. 123 & 178
- 1884 . p. 75
- 1886 . p. 31, 88 & 198
- 1889 . p. 35

Birket Silwân

(Pool of Siloam)

Roughly drawn

Chamber

Village of Siloam

PLAN OF THE AQUEDUCTS AND CONNECTIONS  
RECENTLY DISCOVERED AND SUPPOSED CONTINUATION OF COURSE.  
Palestine Exploration Fund.

ENLARGEMENT



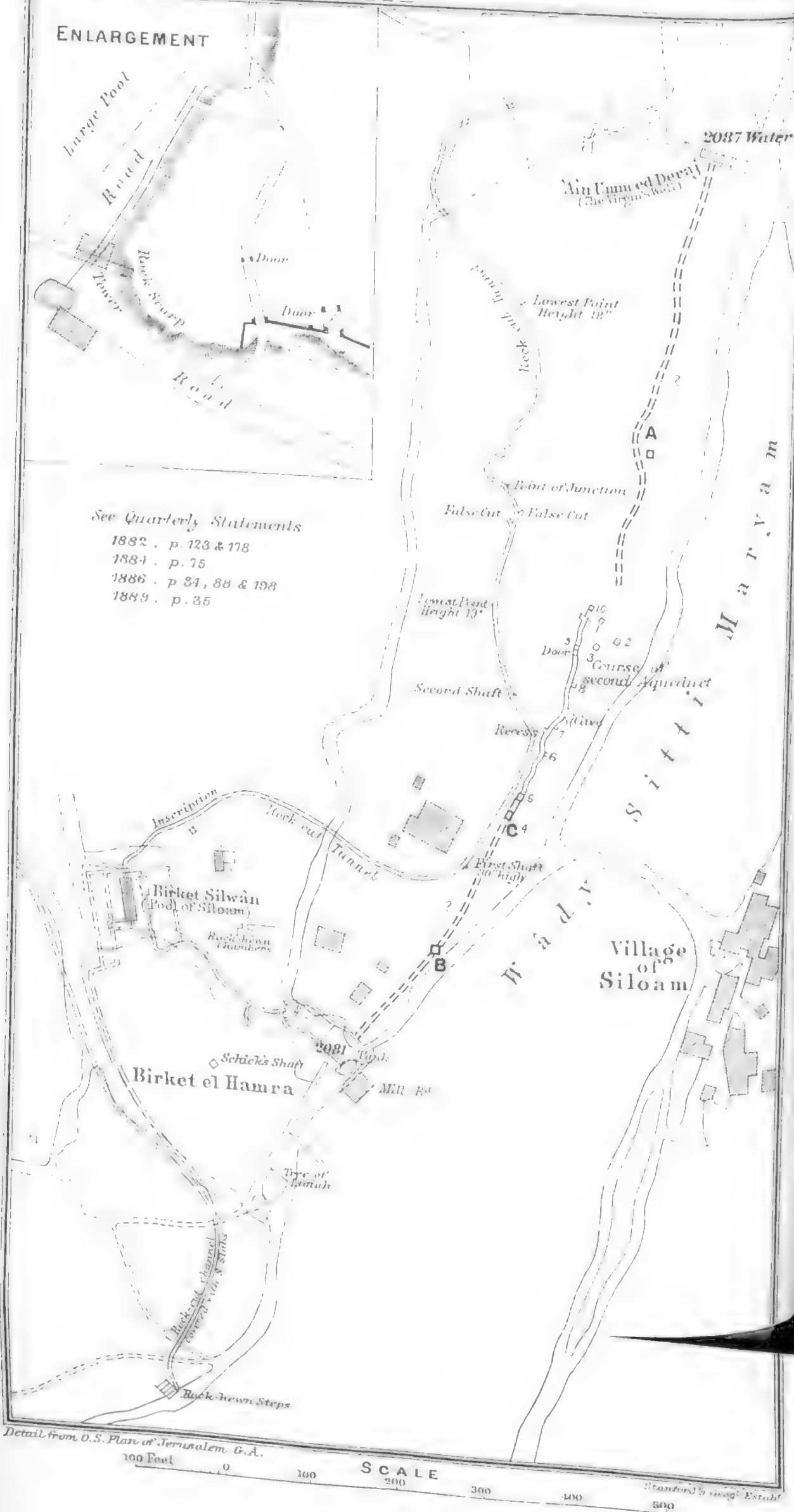
See Quarterly Statements

1882 . p. 123 & 178

1884 . p. 75

1886 . p. 34, 88 & 198

1889 . p. 35



Detail from O.S. Plan of Jerusalem G.A.

100 Feet

SCALE

100

200

300

400

Standard by George Estabro

500

going down from the surface of the rock to be cleared, and anything falling down the shaft would not fall on the heads of the workers below. Also, the height of the rock could be measured; it is here  $10\frac{1}{2}$  feet from the floor of the aqueduct, and up to the surface is  $30\frac{1}{2}$  feet. A little north of it stands a fine pomegranate tree, and I thought the tunnel would go just under it, but it proved to be a few feet more west. A little further, and the tunnel was filled with stones rather than with earth as hitherto; sometimes large ones, so that they had to be broken in pieces before they could be brought in the baskets up through the shaft No. 8 to the surface. Thus the advance in a day was not great. At 35 feet from shaft No. 8 the tunnel became suddenly much wider, viz., 2 feet 8 inches instead of 1 foot 6 inches to 2 feet; and also much higher, namely, 7 feet instead of  $5\frac{1}{2}$  or 6 feet (as the height is varying—in the so-called door only 4 feet or a little more). The top or ceiling of this wider and higher part for a distance of 6 feet was not rock, but six stones, rough and unhewn, each on an average 1 foot broad and 4 feet long, were put across. I now pointed out the place where a new shaft (No. 9) had to be made, a little more north, so that the shaft may come partly on the top of the rock, and thus the men be enabled to remove one or two of the covering stones. It turned out that when one was removed there was opening enough to go on with the work. This latter shaft is 37 feet deep; it is situated on the contour line 2,129 feet above the Mediterranean; the floor of the aqueduct is therefore 2,092 feet, or 5 feet *above* the floor of the Virgin's Well. It is clear that when this second aqueduct was abolished, the hitherto oblong or squared opening (or shaft) was shut up by putting the six stones across it, after a good many stones and earth were cast down, which we had now removed again. East of it I had opened the shafts Nos 1, 2, and 3, in April, without result.

From shaft No. 9 the aqueduct was cleared for 38 feet further north. At 27 feet the rock has a cleft on the top, and partly also on both sides (*see* plan). North of the cleft the rock is *nahry* and brittle, whereas till here it had been of a harder nature. The thickness of the covering part is here less than hitherto, and at the point mentioned, 38 feet from shaft 9 the cover having been thin, had fallen down. So another shaft can be made here. But as the days have now become short, and the rains will soon set in, I have resolved to give up the work. If it is wished to continue the work, it can any day be taken up again, as I fixed the point where the next, or shaft 10, will have to be made. It is on the ground of another man, now planted with nice cauliflowers.

As regards the sinking of the shafts, the soil was for the greater part hard-made earth, but in each were also layers of small stones and chippings, which rendered necessary some propping and scaffolding, although not regular casing. I am thankful to God to be able to say that no accident happened, either to myself, my men, or the general labourers.

The result of these excavations brings the full and unquestionable proofs that *there was in ancient time a "second" Siloah aqueduct*, of which

I laid bare, several years ago, a length of about 125 feet, and now its continuance of 245 feet. The piece between, of about 200 feet, not yet excavated, can hardly be a matter of question, as quite the half of its length is fully proved.

With regard to the level, the excavations prove that the starting point at the Virgin's Well was higher situated than now. In my former report I spoke of a calculation to come out nearly on the surface there, but as in the portions afterwards cleared out the decline is much less, and not everywhere the same, the decline is, on an average, as far as I can now reckon, only  $1\frac{2}{3}$  per cent., and the aqueduct will accordingly come out at the Virgin's Well, on the flooring on which the upper stair ends, or at the foot of the upper stair, very likely where now the Moslem *Mihrab* is situated.

## V.

### THE HEIGHT OF THE SILOAH AQUEDUCT.

All explorers who have undertaken the task of going through the whole aqueduct hewn in the rock from the Virgin's Well to the Pool of Siloah say that about the middle there is a long piece very *low*—so low, that one must creep on the belly, and that if the stream should be strong, the explorer might be drowned. (See "Jerusalem Vol.," page 355, and elsewhere.)

From the south end northwards the height goes down from 16 to  $4\frac{1}{3}$  feet in a length of 350 feet, for 450 feet further the height on an average is  $3\frac{3}{4}$  feet, and there was a shaft up to the surface, now covered and unknown on the surface; from this shaft further northwards in 600 feet the canal lowers to  $2\frac{1}{2}$  feet, then becoming still lower, 150 feet further it is only 1 foot 10 inches; but, adding the mud silt of 1 foot 5 inches, the whole height is 3 feet 3 inches.

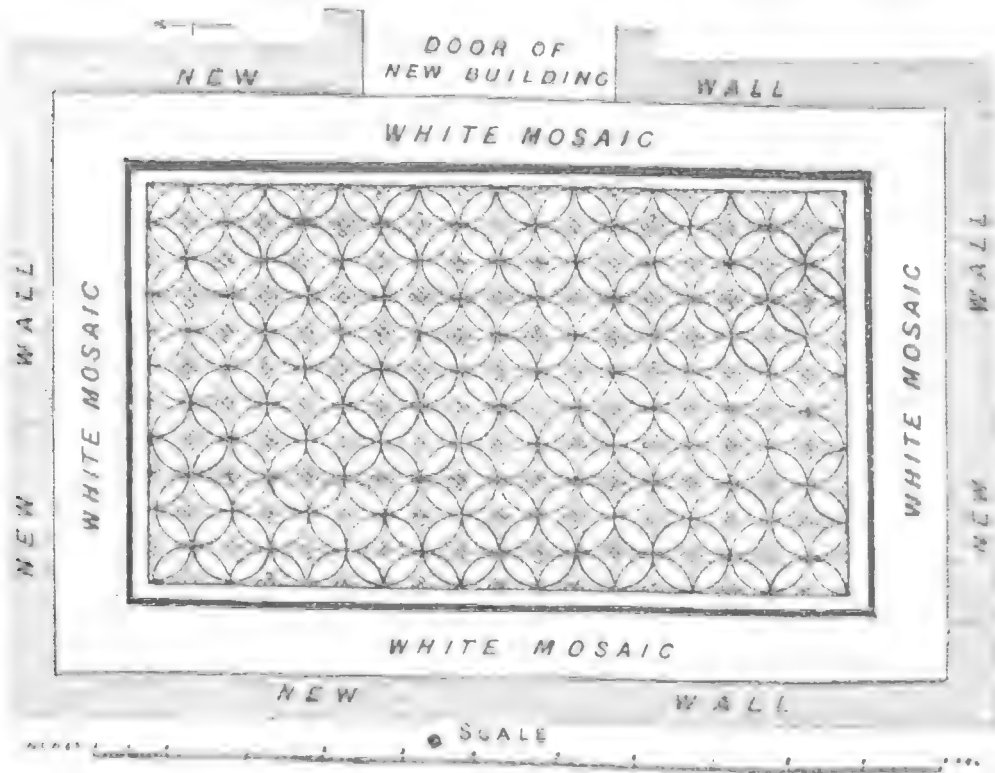
As the low part is near the surface of the brow of the hill, I had an idea that the channel might originally have been open on the top, then covered with flagging, which, having since been encrusted with lime by the water deposit, can no more be seen, but appears as rock. How could men have cut the aqueduct in a height of about 2 feet? It seems impossible, although Captain Conder (page 362) says: "the excavators were under the average size of the modern peasantry in Palestine," *i.e.*, *boys*. It is remarkable that Sir C. Warren had already spoken of some height of "mud silt," which I learned only now when reading his report, and finding in my second tunnel the floor of the channel, not level, but sometimes lower, sometimes a little higher, I thought it might be so in the other one; and as this latter is now dry I sent in my men with the necessary tools and the order to examine the floor at the place where the aqueduct is so low, and to dig down to the bottom, *i.e.*, to the *rock*; the result was—there is first some mud and a crust, and under this a deposit

of *sand*, so that the whole height is there 3 feet 8 inches, a height in which a man of ordinary stature might easily work. In the accompanying drawing I have tried to illustrate this. It is clear that originally there was water in all the depressions, that in course of time these became filled with sand and other deposit, and that what more came of such stuff was floated down to the pool, together with the water, as there was no more room for settling down, so that in course of a long time a crust was formed, over which the water ran, washing uneven particles off.

## VI.

## SEARCHING FOR THE ST. PETER'S (OR COCK-CROW) CHURCH ON ZION.

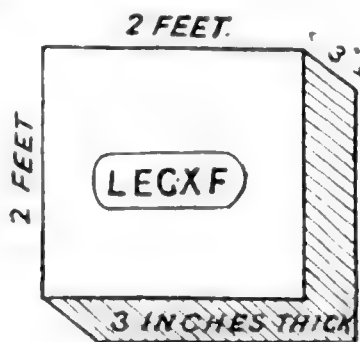
The excavating work by the Augustine Brethren went on during the summer months, but only in a small way. Walls of no special interest were laid bare, especially masonry made from *bricks*, which were apparently Roman baths. Better materials had been taken away long ago, but a *water channel* was found bringing the water downwards from a higher point, very likely from the aqueduct coming from Solomon's Pools. This channel is of poor workmanship, and not ancient. Also



MOSAIC FLOORING LAID BARE BY THE AUGUSTINE MONKS ON EAST SLOPE OF MOUNT ZION, 1890.

there was found a Mosaic flooring, perfectly preserved, of which I send the pattern. In order to preserve it, the Brethren built a room over it.

Some of the bricks, especially the larger ones, have *stamps*, of which also I give a pattern. We learn from them that these baths were made in midst of the ruins by the Roman soldiers of the 10th Legion. As such are found elsewhere also, as I have reported from time to time, it would seem that this legion was stationed for a long time in Jerusalem, and



ROMAN TILE FOUND ON EASTERN SLOPE OF MOUNT ZION.

perhaps that their tools for brickmaking may have been used afterwards by others, possibly even by the natives.

## VII.

### PROCEEDINGS IN SEARCHING FOR WATER.

As all places hitherto tried had failed, they made a shaft on the north side (inside the pool) of the southern wall of the Sultan's Pool in Wady Rahab, in the valley west of the Protestant (Bishop Gobat's) School, and *found some water*, but no conduit. The water simply came out from the moist deposit there, and when they had taken out this water it ended; there was neither spring nor drainage. Some digging in the street of Deir Addas, north of the Haram Area, had the same result: no spring was found, only a very little water, coming out from an unsound cistern.

## NARRATIVE OF A TRIP TO PALMYRA IN APRIL, 1890.

By Rev. GEORGE E. POST, M.A., M.D., F.L.S., Beirût, Syria.

WE chose Damascus as our starting point, for several reasons—(1) its accessibility from Beirût, a matter of importance, as we had but a fortnight for the journey; (2) The ease with which we were able to get animals and supplies in that city; (3) The desire to observe the physical geography and botany of the spurs of Antilebanon, and the outlying

plains at the border of the arable land and the desert between Deir 'Atîyeh and Qaryetein.

At 9 a.m. of Thursday, April 3, the barometers<sup>1</sup> read W. 27.48, B 27.63; another aneroid, with which I compared both, read 27.43. This would give the height of Damascus above the sea as 2,325 feet. The sky was at the time overcast, following a previous day of showers.

At 1 p.m. we left the city by Bab Tûma, and rode for some time along the paved Aleppo causeway, until we struck the mountain road to Ma'arrâh.

Just out of the city we passed fields of Fenugreek (Arabice *Hilbah*). The seeds have a sweet, Coumarin smell, and are used to give an acceptable odour and taste to bread and biscuit. The plant is used as fodder, or to mix with other fodder to give it an appetizing smell and flavour. Cattle will often eat musty food when flavoured with Fenugreek. The milk of cows fed with it acquires a strong taste, which the natives do not dislike, but which is unpleasant to many foreigners.

The chain of Antilebanon begins at Hermon, which resembles a gigantic fin-back whale, rising over the plain of Cœle-syria. A *first chain*, composed of a table land, with few marked elevations above the general surface, extends from the shoulder of Hermon by Rasheiyah, E. by N., to the latitude of Baalbek, where it joins the main chain of Jebel-esh-Shurqi. The Wadi-el-Harîr and Wadi-el-Qarn form a pass through this chain, of which advantage was taken in constructing the Damascus Road. A *second chain* diverges somewhat more to the east, and under the name of *el-Jebel-esh-Shurqi*, trends about N.N.E. to the latitude of Hems Lake, where it gradually sinks to the plain at the "entering in of Hamath." The highest peaks of the Antilebanon are in this chain, overlooking the oval plain of Zebedani, which separates the two chains. The Barada, arising in this plain, flows southward, and then turning eastward, breaks through the second chain at Suq-Wadi-Barada, and continues an eastward course to Damascus. A *third chain* diverges from the Jebel-esh-Shurqi, north of el-Fiji, and trends in a N.E. direction to near the latitude of Hems, where it sinks into the plateau between Deir 'Atîyeh and Qaryetein. This is the ridge, on the eastern flank of which Sidnâyah is situated, and is known by the name of *Jebel Qalamûn*. A *fourth chain* continuous with the ridge of Jebel Qaisûn, takes a more easterly direction and then sweeps again to the north-east, and at last is merged south of Qaryetein in the range of el-Bârîdi and Jebel-'Ain-el-Wu'ûl, which stretches away to Palmyra. In the first part of its course from Damascus to Ma'arrâh, it is called *Jebel Khîtmeh*.

<sup>1</sup> The aneroids used on this trip were one of Watson's and one of Brown-ing's make. In the text *W* will signify the former and *B* the latter. Prof. Robert West, of the Syrian Protestant College has kindly calculated the heights indicated by the readings of the barometers, by comparison with those of the standard barometer of the Meteorological Department of the Observatory under his care.

These four chains have been compared to the four fingers of a left hand, spread apart, with the palm or surface directed upward. In this schematic representation, Hermon constitutes the palm; the westernmost chain corresponds to the forefinger; the main chain, or Jebel-esh-Shurqi, to the middle finger; the third, or Jebel Qalamûn, to the ring finger; and the fourth, or Jebel Khiṭmeh, to the little finger.

Our road from Damascus to Ma'arraḥ lay over the little finger of the mountain hand. On the chalky foot hills, glaring in the afternoon sunshine, we met with *Astragalus angulosus*, *Scorzonera lanata*, *Iberis odorata*, and *Androsace maxima*.

We breasted the first spur of this range in the face of a gale, which made it difficult for our animals to maintain their footing on the slippery rocks. But as we got under the lee of the ridge the wind ceased to blow in our faces, and we were able to enjoy the magnificent panorama of the Ghantāḥ, Ḥaurān, and Gilead, with the mountains of Galilee for a frame on the right, and Jebel-el-Bâridi in the far distance on the left. The top of Jebel Khiṭmeh is saw-toothed and jagged in the extreme, and a steep talus of *débris* forbids the ascent along most of its eastern flank. We wound up gradually to a break in the crest, and just before reaching it passed through a natural cleft, where we collected fine specimens of *Lloydia rubroriridis*, *Bellevalia flexuosa*, and *Ornithogalum montanum*.

As soon as we had surmounted the crest, we began to pass over the rolling table land of Ma'arraḥ, which lies between the little and ring-fingers of the mountain system. Just before reaching the village we passed a series of shafts, many of them not more than eighteen inches across—some of them in the very path, where an incautious man or animal might easily fall in. They lead down to the village aqueduct, which is about fifteen feet below the surface of the ground. They are used to enable a man to go down into the aqueduct and clean it out. The villagers told me that every now and then an animal, or a part of him, falls into one of these pits, and once a child fell into one, and was rescued with some difficulty. Similar shafts are found in the neighbourhood of Qaryetein and Palmyra, and will be described in their place in this narrative. This system of water supply is widely known throughout Asia, and has been treated at length by Mr. Simpson in the *Quarterly Statement* for January, 1890.

Ma'arraḥ is five and a-half hours, mule time, from Damascus. At 7 p.m. the barometers were W. 25.7, B. 25.85; height by W., 4,200 feet above the sea. The sky was clear, and the air bracing and cool. We obtained two good rooms in the Syrian priest's house, and after a hearty supper, were not loath to compose ourselves to rest.

*Friday, April 4, Ma'arraḥ.*—Barometers, 7 a.m., W. 25.7, B. 25.85, as at evening.

The village and convent fortress of Sîdnâyah are picturesquely situated on the eastern flank of the ring-finger range. A fine view of both is obtained about twenty minutes after leaving Ma'arraḥ. High above Sîdnâyah, near the crest of the ridge, is the flat-topped and unpicturesque convent

of Mar Tûma. The road to Ma'lûlah lay along the base of the mountain range of Qalamûn, gradually rising all the way. Half-an-hour before arriving at Ma'lûlah, the direct road to Yebrûd, breaks through the range by a gorge, down which a rill of fresh cool water was running. In the clefts of the rocks by this rill we found *Aubrietia Libanotica*, a beautiful purple-flowered crucifer, hitherto not seen in Antilebanon. Mr. Bliss has described the Qalamûn range graphically in his article on Ma'lûlah in the *Quarterly Statement* for April, 1890. He has also given an exhaustive description of the village, its caves, inscriptions, and interesting dialect, leaving little for me to add. We found the rough ladder leading to the principal cave on the southern cliff still more ruinous than it was at the time of his visit.

At the village fountain we saw women washing. They sprinkled over the clothes a powder which we ascertained to be the *Ushûn*. It consists of the pulverised stalks and roots of *Salicornia fruticosa*, L., the Soda plant, which is also called *Hashishat-el-Qali*. This plant is reduced to an ash, from which soda is extracted by lixiviation, and used in the manufacture of hard soap. Our English word *alkali* consists of the Arabic definite article *al*, and the name of this plant *Qali*. The fathers of modern chemistry Latinised *Qali* to *Kalium*, and applied it to *Potassa* instead of to *Soda*. The people of Jarrûd, in whose neighbourhood the *Salicornia* grows abundantly, prepare the dried plant itself as a washing powder, by pounding it in a stone mortar.

We attempted to cross the range behind the town by the cañon. I succeeded in leading my horse through the cleft, which is at places only a yard wide, and reminds one, on a small scale, of the Gorges du Trient at Vernayaz. The horse of another of us fell in the water at the throat of the pass, and had to be pulled out backward. The third could not be induced even to attempt the passage. These two were led around the pass by a circuitous path up the rocks, near the convent of Mar Taqla, and we re-united our forces at the upper end of the gorge.

Barometer at top of pass, 2 p.m., W. 26.5, which gives height, 5,500 feet. Ma'lûlah is six hours, mule time, from Ma'arrâh.

Our road from Ma'lûlah to Yebrûd lay over the rolling table land at the top of the ring-finger of the mountain system. This land is bounded toward the west by the Jebel-esh-Shurqi, the middle finger of the series. Yebrûd is four hours farther on. We passed numerous wild almond trees on our way, and in a field by the roadside met with the pigmy, cream-coloured *Viola ebracteolata*, the smallest of the genus in Syria.

Just before entering Yebrûd through the pass which separates the plateau over which we had come from that of Nebk and Deir 'Atiyeh, we saw numerous rock-hewn tombs, none of them, however, of any special interest in this land of sepulchres. A copious stream of limpid, cold, mountain water arises at the gateway of the pass, and flows through the village and out among the extensive gardens to the north.

We spent the night at the hospitable home of ———. We arrived

just in time to escape a drizzling rain. There was, however, little wind. Barometer, 6.30 p.m., W. 25.35, B. 25.45.

*Saturday, April 5.*—6 a.m., Yebrûd. Barometer, W., 25.25, B., 25.4. Height above sea, W., 4,550 feet.

A little incident, illustrating Oriental customs, occurred in parting. M., being a stranger, felt that he had no claim for lodging and the items of commissariat which he had received, and on giving his hand to the host at parting pressed a medjeedie into his palm. The good man refused, warmly protesting in broken English that it would be a disgrace to a Syrian to receive money from a guest, and folded M.'s hand around the silver piece. M. said that it would be equally a disgrace for an American not to pay something. The host insisted, and the guest persisted in plying arguments, until the weight of proof and the subtle influence of the concealed coin gradually caused the host's hand to relax, when by a dexterous movement M. slid the coin out of his into the other's palm, and they bade good-bye to their mutual satisfaction.

On leaving Yebrûd, while still passing through the irrigated gardens, the village of en-Nebk loomed up imposingly an hour and a half to the northward. Being the last postal and telegraph station, we wished to send letters and a despatch to our friends, but we were told that, although it was already nearly 8 o'clock, the office would not be open for at least two hours.

Another hour and a half over the rolling prairie brought us to Deir-'Atiyeh, where we rested for an hour in the hospitable house of Mr. Rahîl, the teacher of the Protestant school. We availed ourselves of the interval before the arrival of our train to write a letter to be sent by the teacher to Damascus. Barometer at 10 a.m., W. 25.7; B., 25.82; Height, W., 4,000 feet.

On leaving Deir-'Atiyeh we entered the broad plain which merges on the left into the "entering in of Hamath," and on the other into the Syrian Desert. During the first hours of our way we met with large fields of *Chorispora Syriaca*, a pretty, pink-flowered crucifer, strongly resembling in general effect *Silene Atocion*, which is so abundant in the maritime plains, and the western water-shed of Lebanon and Palestine.

The range of Qalamûn, over which we had passed in coming from Ma'lûlah to Yebrûd, now bore away to the right, while the main chain of the Jebel-esh-Shurqi trended to the left, and gradually descended toward the plain of Hems. On a chalky hill-side we met with *Mathiola Damascena*, not heretofore seen so far north. A little further on *Iris Sari*, so common in Moab, and also found far out in the Syrian Desert. Also the white-flowered *Tulipa biflora*, then a blue-flowered variety of *Iris Palæstina*. Little by little the ground began to assume the characteristics of desert, probably more from want of cultivation than from absolute sterility. As we rode farther to the northward, the peculiar conformation of the Hems Plain, which gave it the name of the "entering in of Hamath," began to unfold itself. Soon we passed the northernmost

spur of Antilebanon, and began to see Lebanon and the valley of Cœle-syria. To the north of Lebanon, separated from it by a broad plain, we could see the Nusairy range, while to the north of Antilebanon, and separated from it by the plain eastward of Hems, loomed up the range of hills which shuts in the Orontes Valley to the east. Hems is situated at the junction of the four arms of a cross, formed by the continuous valley of Cœle-syria and Hamath, running south and north, and the east and west valleys, which bisects both mountain chains, crossing the other at a right angle.

At 5 p.m. we reached the Muhammedan village of el-Mahîn. Having to wait for our train before pressing on to Qaryetein, we called for some bread and lebben. The bread was dark-coloured, and by no means clean, and the lebben was full of dust and goat's hairs. Nevertheless, we ate with the keen appetites of travellers, and, at 5.30 p.m., mounted and faced eastward towards the desert. Notwithstanding the brigandish look of our hosts they refused backshish for the provisions furnished, and bade us God-speed on our way.

We had been gradually descending all the way from Yebrûd, and still our path lay downward by a gentle grade over a rolling plain to Qaryetein, three hours from el-Mahîn. We left the last ploughed fields on turning our backs on this village, and passed no more arable land or water until we reached Qaryetein. Half an hour from el-Mahîn I collected quantities of *Silene coniflora*, characterised by its pink-purple flowers and the prominent white crown at the throat of the corolla. The moon rose full over the range of mountains to our right. By its brilliant light we saw a carriage track, which we followed all the way to Qaryetein.

The streets of Qaryetein were turned into a putrid marsh by late rains. We passed through the silent town, and at 9 o'clock p.m. knocked at the outer gate of the teacher's house. There was no response, and the gate being locked, we had no resource but to wait until one of the muleteers hunted up the proprietor, and brought him from the other end of the town. When he returned, however, he gave us a most hospitable reception. His wife immediately cleared out two of the three rooms of which the house is composed, and placed them at our service. The room which we occupied was large and clean, and contributed not a little to our comfort for the two nights and the day which we spent there.

Qaryetein owes its importance to the fact that it is the border town of the desert proper, and a necessary stopping place for all who go from Damascus to Palmyra. There are two sources of water in the town, one the wells which are found in the open court of each house, and the other the fountain at some distance from the walls. A supply of water for irrigation has been obtained by extensive trenches about twenty minutes east of the town, and a more meagre one at Mar Liân by similar means. The trench of Mar Liân runs back to an underground aqueduct, which is tapped every few yards by shafts similar to those noted at Ma'arrah.

Qaryetein is governed by Fayyad Agha, the chief of a family, which has ruled this district in a feudal way for many generations. He has the reputation of being an arbitrary governor. We, however, experienced nothing but politeness at his hands. He called on us, and gave us all the information we desired in regard to the desert, among other things giving us an itinerary which made it unnecessary for us to carry water, as is usual on this journey. When we returned his call he showed us a number of interesting pieces of sculpture, with Palmyrene inscriptions on them. He told us that he proposed to form a small museum of such objects. He called the Palmyrene character *Serankili*, by which he probably meant *Estrangelo*.

*Sunday, April 6.*—9 a.m. Barometer, W., 27·18, B., 27·4; height, W., 2,660, B., 2,600; mean, 2,630 feet. We held divine service in the house of Mr. Yusuf Shahin, the teacher, and after that a clinique for the sick folk of the village who chose to come for treatment.

During our stay in Qaryetein a pretty piece of sculpture was brought to us, and offered for sale. It consisted of a slab of argillaceous limestone, 24 inches long, and 18 broad. Most of the Palmyrene busts are cut out of this stone. The accompanying sketch will give an idea of the style of the sculpture, which was far superior to any others which I saw. The drapery is graceful, the tiara and jewellery are carved with care, and the attitude is easy and natural. The face of the original must have been one of rare beauty (p. 27).

The accompanying copies of squeezes taken from the inscriptions show the kind of legend which is found on all the busts and statues of Palmyra.

On my second journey to Palmyra, in July of this year, I was fortunate enough to obtain the bust itself. There are manifest faults in the sculpture, but the general effect is pleasing.

*Monday, April 6.*—6 a.m. We started in the cool of the morning for the desert. Our road lay at first through the walled gardens, and then through open irrigated fields. In these fields I found *Astragalus conduplicatus*, *Salvia controversa*, and *S. Verbenaca*, *L. var. vernalis*; all new for this region. Twenty minutes from the town we came to the series of trenches above alluded to, about 15 feet deep, and at the bottom there was a small stream of water. The labour with which these deep trenches are excavated shows the value attached to even small quantities of water in this thirsty land.

The part of the Syrian Desert on which we were entering consists of a series of mountain chains, trending nearly east and west, and separated by broad, almost level plains. The mountain masses are composed of the Lebanon cretaceous limestone, and the plains of mud and clay, with here and there an island of sand. The whole district seems to be underlaid by a layer of asphaltic shale. The well at 'Ain-el-Bieda is strongly impregnated with sulphur. The surface spring at el-Jebâh is also sulphurous. The fountains at Palmyra are very strongly so.

The highest peaks of the mountain chains are not less than fifteen

hundred feet above the surface of the plains. The chains begin at the longitude of Qaryetein, and end at that of Palmyra. Their length is therefore about 50 miles. The southernmost is wholly denuded of trees, and, with the exception of a few scattered specimens of *Rhamnus Palestina*, I found no shrubs growing in the crevices of the rocks. The plains, notwithstanding their level appearance, fall gradually to the east-



ward. By one of our barometers Palmyra is 1,300 feet and by the other 1,180 feet lower than Qaryetein. The water which falls on them, and flows into them from the adjacent mountains, sinks into their surface. Not a single torrent flows out of them, even during the heaviest rains.

The soil is a greyish marl, with occasional out-croppings of glaring white chalk. Flint chips and nodules abound in many places over its

surface. There are, however, many levels, where for miles there is not a pebble on the ground.

In comparing these plains with those of the maritime districts of Sinai and the plateau of et-Tih, I was struck with the absence of the broad and deep torrent beds which characterise the southern deserts. While crossing the space between Palmyra and the military post of 'Ain-el-Beïda, a violent thunderstorm broke over the line of our march, about an hour ahead of us. When we arrived there an hour later we found an area of ten miles square, over which we had passed dryshod two nights before, a vast morass, in the mud of which our horses' hoofs sank to the fetlock joint at every step. The Wadi-el-Bâridi, which we crossed during our first day's journey, and in which we encamped, was the deepest water-bed that we encountered. It was only a few feet below the level of the plain.

The vegetation of these plains differs widely from that of the Sinaïtic valleys and of the plateau of the Tih. I met with only one species of *Tamarix*, *T. tetragyna*, and that, not growing as in Sinai and the Tih to the height of a small tree, but forming little clumps of shrubs scarcely a yard high on low sandy hummocks. On similar hummocks grows also *Lycium Barbarum*, but does not rise above two or three feet. Not an *Acacia* diversifies the landscape; not a *Retem* offers even its light shade to the sunburnt traveller. Only one *Zygophyllum*, *Z. eurypterum*, reminds one of the numerous species of that genus in the southern deserts. There is not a solitary *Caper*, nor any other of the numerous shrubs and trees which give so decided and peculiar a character to the landscape of the Sinaïtic valleys and the Tih. Only in the Wadi-el-Bâridi did I see anything approaching a tree. Near our camp in that wadi were a few stunted trees of *Pistacia nutica*, a tree which we afterwards found in great abundance in the mountains of Jebel-el-Abiad and Bil' âs. There is every reason to believe that these mountains would support forests of *Quercus coccifera*, or other of the trees that flourish in regions equally dry, but if they formerly existed they have disappeared. There is not even a tall herbaceous vegetation on the plains. The low desert grass, *Poa bulbosa* (and its congener or variety *P. Sinaïca*), forms, for miles together, almost the sole vegetation, and when it has dried up in summer, it leaves those portions of the desert dreary indeed.

At the season when we travelled there was much grass and a considerable number of flowers, some of them beautiful. *Iris Sari* is abundant on the western half of the plain, between Qaryetein and el-Beïda. On the slope of Jebel-'Ain-el-Wu'ûl, I found a new variety, *var. amblyophylla*, of *Tulipa montana*. The divisions of the perianth are obovate-oblong, obtuse. A pretty *Erysimum*, with purple flowers half an inch broad, is found everywhere, appressed to the ground. It is the species named by Boissier, in his "Supplement to the Flora Orientalis," *E. Blancheanum*. It had been named by Blanche himself *E. hamosum*, on account of its hooked pods. I have seen his type specimens in his herbarium at Beirût. But I am satisfied, by an exhaustive study of the species in the Anti-

lebanon plateaus, throughout which it abounds, and in the whole desert region through which we passed, where it is one of the most characteristic plants, that it is a variety of the polymorphic *E. purpureum*. I propose for it the name *var. Blancheanum*, of the above species, in memory of the lamented M. Blanche, to whom M. Boissier dedicated the new, but indefensible species.

Among the showy flowers of the desert at this season are *Ornithogalum montanum*, *var. platyphyllum*, a fine species, with inch-and-a-half broad flowers. *Sisymbrium grandiflorum*, Post, is a species with orange-coloured to pale yellow flowers, as large as the common *Stock*. This plant is general through the western part of the plain. I have it also from Aintâb. *Brassica deflexa*, also an orange-flowered crucifer, is found sparingly in rocky places near the western limits of the plain.

Where the desert grass, *Poa bulbosa*, and *P. Sinaica*, grows in quantity, it gives large tracts of the plain the appearance of greenness and fertility. Tufts of *Artemisia Herba-alba* cover also large tracts, and give an olive-green tint to the surface.

Characteristic of the region, although less abundant and showy, are *Alyssum aureum*, *A. meniocoides*, *Valerianella Kotschyi*, *Malcolmia crenulata*, *M. torulosa*, *Peganum Harmala*, the latter not yet in flower when we passed. Everywhere we saw young plants of *Ferula Blanchei*, Boiss., which is also met with between en-Nebk and el-Mahîn.

Of great botanical interest are certain plants with a limited range. For example, in the green meadows surrounding the wells of Abul-Fawâris, half an hour west of Palmyra, was a great abundance of *Hutchinsia petraea*, a new plant for Syria. In the swampy district, a hundred square miles of territory were covered with *Spinacia tetrandra*. In the same swamps were found *Cynomorium coccineum*, and *Phelipea lutea*. In the middle region of glaring white clay I found the new and showy *Muscari albicaule*, Post.

It is my conviction that artesian wells would convert the whole of the plain into a fruitful field. Many portions of it need only to be ploughed and sown to produce fair harvests, even with the scanty rainfall there enjoyed.

The Fauna of the desert is limited. The fox, jackal, hyæna, hare, jerboa, and a few species of snakes and lizards, were all the animals we saw. The birds are mostly clad in sober grey, like the soil. Except vultures and hawks, and the hubarab, we met with no birds of any size during this journey. We afterwards found abundance of partridges and other game birds in the Bil-'âs chain.

To return to our journey. As soon as we had passed the trenches east of Qaryetein we struck at once the dry plain, and bade good-bye to cultivation until we reached the irrigated gardens and fields of Palmyra. We carried no water with us, as we were to encamp by the Arabs at el-Bâridi the first night, and at 'Ain-el-Beïda the second. Usually, the first night is spent at el-Qasr, where there is no well, and water must be carried for man and beast.

Presently, after leaving the trenches, we crossed a shallow wadi, in which a considerable stream must flow during the rains, and rode about east across the plain. In this wadi we found *Aethionema cristatum*. On the plain *Ornithogalum tenuifolium*. After a couple of hours we crossed a low ridge, and came into another broad plain between it and the main chain of Jebel-el-Bâridi. In this plain we met with a new species of *Borruginaceæ*, yet unnamed. We also found *Allium Rothii*, which is general throughout the desert.

At 3 p.m. we arrived at the Wadi-el-Bâridi. In numerous basins of white chalk along its bed we found water, which was drinkable, though warm. Along the sides of this wadi was a considerable number of Arab encampments, and their black tents dotted the base of the mountains of Jebel 'Ain-el-Wu'ûl for several miles to the eastward. We pitched our tents by that of Sheikh Ramadân, the chief of the Fawâ'irah, a tribe of tributary Arabs.

As soon as our train began to unload R. and myself rode southward for an hour and a half to the mountain range. The ground became more and more broken by wadies as we approached its foot. On a rocky hillside we collected *Zygophyllum eurypterum*, a species thus far found only in the Syrian desert. Just before commencing the ascent of the mountain we passed a second encampment of the Fawâ'irah. Our guide Khalid remained with these Arabs while we rode up the hill. Halfway up we encountered the *var. amblyophylla* of *Tulipa montana*, with a most brilliant crimson perianth. At the top, in crevices of the rocks, *Umbilicus Libanoticus*, and everywhere *Erysimum purpureum*, *var. Blancheanum*. A few bushes of *Rhamnus Palestina* were scattered over the hillside. The soil was still quite moist from the recent showers. I believe that it would ripen a crop of wheat or barley.

The part of the ridge which we ascended is 200 or 300 feet lower than the highest peaks. The barometers stood W. 26.23, B. 26.42, giving the height by W. 3,650 and B. 3,600 feet above the sea. The difference of level between our camp in the plain and the top of the ridge at the point where we took our observations was by W. 910 feet.

The view from this mountain top was very grand. Wave after wave of mountain ridges rolled away over the desert plain, which at this season still appeared green. The plain in which our camp lay is not less than 30 miles broad at its western end, and gradually narrows to the throat of the gorge at the entrance to the street of tombs at Palmyra. From our position we could make out quite clearly the castle on the hill west of Palmyra. El-Qasr loomed up in sharp outlines in the middle of the plain, two hours north of our encampment.

On the slope of this mountain, a little north of our line of ascent, is the perennial fountain of 'Ain-el-Wu'ûl. The marauding parties of Arabs avail themselves of it during the whole year.

After enjoying, as long as our time would allow, the extensive prospect and the cool breeze, we descended to the plain. While leading my horse down the steepest part of the hill, my overcoat slipped off the

saddle. I offered a reward for its return, but either the Arabs did not find it, or thought the coat worth more than the reward, and I never saw it again. Such a loss is no trifling one in a journey where there is no way of replacing the lost article. Fortunately, however, our journey was not in the season of the bitter cold winds which often sweep over these deserts, and no ill consequences followed the loss.

We galloped over the plain, and just before sunset reached our tent. The barometers read as follows :—

7 p.m., W. 27.12 ; next morning, at 6 a.m., 27.2.

B. 27·72.                „                „                27·8.

Height, W. 2,740 ; B. 2,300.

I am unable to offer an explanation of the discrepancy between the relative readings at the top and on the plain, nor in fact for the idiosyncracies of aneroids in general.

*Tuesday, April 8.*—At 6 a.m., we started across the plain in an oblique direction toward 'Ain-el-Beida. The roll of the plain is very gentle, and yet very decided. The soil is for the most part white, free from stones, and barren. Nevertheless, during the day we found *Zizyphora tennior*, *Lallemantia Royleana*, Wall (quite new for this region), *Arnebia cornuta*, and *Muscari albicaule*, Post, a new species, notable for its white stems and long peduncles. Seven hours of this prairie brought us to 'Ain-el-Beida.

This military post was established by the Turkish Government a few years since for the protection of the road from Qaryetein to Palmyra, a road travelled by large caravans of merchants and travellers. The well seems ancient. It is over 80 feet in depth, and the curb and lining stones are deeply grooved by the ropes used to let down the leathern buckets. These buckets are composed of the untanned skins of cattle and goats. They are of the shape of an ordinary fleshpot, the mouth being a loop of wood or iron, around which the skin is rolled and sewed. The thong by which the bucket is held is of raw hide. The advantage of such a bucket over one of wood is made clear to anyone who watches how it sways to and fro, and strikes the uneven side of the well on its way up and down. A wooden bucket would soon be broken to pieces by such usage. The skin bucket, moreover, can be packed away in a very small space, and carried conveniently on a mule or ass. The water of this well is brackish, but seems wholesome. It is quite cool.

The building, which serves as a barracks for the small garrison of soldiers, consists of a lower storey about 50 feet square, and a single, small room upstairs. The gateway is on the south side, opposite the well. There open into the central court, several vaulted chambers, which are used as stables and storerooms. A rude stairway leads to the roof. Over the doorway is the small upper room above-mentioned. It is occupied by the soldiers as a sleeping room, and a watch-tower from which to observe the adjacent desert. There is a wall breast high around the roof, loopholed for musketry.

The five men of the garrison, by virtue of the authority which they represent, rather than the impregnability of their position, constitute a guard sufficiently strong to overawe the hordes which occasionally sweep through this plain on their lawless raids. I took down their names; they are as follows: 'Abd-el-'Assâf (Servant of the Autocrat); Hamod-es-Sâlih (Praise of the Righteous One); 'Abd-el-Aghla (Servant of the Most Precious); Sâlih-el-'Ali (Righteous of the Lofty); 'Abd-Mahmûd (Commended Servant). One of these was a negro, but there seemed to be no race prejudice among them. Another was a Bedawi, and from him I obtained much valuable information, which I hope to lay before the readers of the *Quarterly* hereafter.

At Qaryetein we had made the acquaintance of an assistant of the Attorney-General of Bagdad, who had been in Damascus, and was travelling overland to Bagdad in a palanquin, borne by two mules. It was so arranged that he could lie stretched out at full length on the bed, or sit up and look out of the windows on all sides. It was painted with scarlet, and formed a very conspicuous object in passing along the plain. This official had started at the same time as ourselves from Qaryetein, but had gone by way of el-Qasr, where he rested during the afternoon and evening hours, and then came on by night to el-Beida. This mode of travelling is adopted for the double purpose of safety from the Bedawin and escape from the fervid heat of the day. We found him at the station on our arrival at 1 p.m. We arranged to join forces at sunset, and make a night march to Palmyra. Our two caravans made the imposing array of sixteen animals and fourteen men. To encourage our muleteers and attendants to undertake this night march we gave them a bowl of strong tea all around, and promised them a lamb the next day at Palmyra. Accordingly, after resting through the afternoon, we formed in close order of march, and started at dusk. As yet the moon had not risen, and even the stars were obscured by clouds. Our only guide was the dark outlines of the converging ranges of mountains to the right and left. Palmyra lies at their meeting point. By keeping our faces toward the castle, which looms up over the Palmyra notch, we were able to hold our way over the level plain. Not infrequently our horses recoiled from the edge of some little pool of water, often not over a yard broad, and a few inches deep, which had been left by some recent shower. On our return over the same route by day, we saw many such pools, and large districts wholly under water, but a few inches however in depth.

As we approached the throat of the valley of tombs the tall towers of the dead loomed up on either side of the way. The moon, which had risen at half-past eight o'clock, now guided us over the rocky road, and caused the sepulchral monuments to stand out in bold relief. Presently we turned a corner in the path, and the wonderful panorama of Palmyra unrolled itself before us in the misty moonlight. It was one o'clock in the morning when we reached the street of columns. Silently as we had ridden in, the Sheikh was soon with us, and invited us to lodge with him. We preferred our freedom, and pitched our tent just within the

eastern gateway of the street of columns, and by half-past two we were sound asleep.

*Wednesday, April 9, Palmyra.*—Barometer, 7 a.m., W. 28·2 B. 28·6 giving the height by W. 1,680, and by B. 1,300 feet above the sea. The morning was bright, and our first thought was naturally the survey of the ruins. Although less massive than those of Baalbek, the general effect is more striking and impressive. No street of columns like this exists elsewhere, not even in Gerash, and the effect when the row was unbroken, and the monumental building at the western end was perfect, must have been extremely imposing, from whatever point seen. Not less so was the grand Temple of the Sun, which for general impression well rivals that of Baalbek.

The most striking view of the ruins is that obtained from the castle on the hill west of the city. The castle itself is a most picturesque ruin, and is visible to a distance of twelve to fifteen hours on the western plain, and as far as the eye can reach on the eastern. The ascent to the castle is from the south, along the old road. A horse can easily go up from this side.

In the foreground of the view from the castle is a line of pits, from which have been dug out many sculptures and other antiques. Beyond these are the remains of the several buildings, with well-preserved pillars, then the great double row of columns, beginning with the edifice usually considered as a tomb, and ending at the beautiful gateway where our tent was pitched. Branching from the main street near its centre is the side street of columns, the so-called market-place. Beyond the street of columns is the majestic Temple of the Sun, and far away behind it the glittering waters of the Sebkha (the salt lake of Palmyra), and behind that the boundless plain of the Syrian desert.

On either side of the street of columns are the ruins of the numerous temples and mausoleums of the city. Around the whole may be traced the remains of the wall of Justinian. To the southward, along the flanks of the hills, and in the valley of tombs are the sepulchral towers, which are so peculiar in this land of wonders. No ruined city in Syria and Palestine, except Jerusalem, has such a point of view from which to take in a complete idea of its grandeur.

The immediate site of Palmyra is sandy. Many of the fallen columns are embedded in white sand, and the Flora of the ruins takes its character from this circumstance. I collected among the fallen columns *Leptaleum filifolium*, *Silene coniflora*, *Holosteum umbellatum*, *Spergularia diandra*, *Malva parviflora*, *Erodium laciniatum*, *E. glaucophyllum*, *Medicago tribuloides*, *Trigonella azurea*, *T. filipes*, *T. Arabica*, *Astragalus cruciatus*, var. *brachylobus*, *Post* (a variety with tubercled hairs on the short pods), *A. callichrois*, *A. Forskahlei*, *Aizoon Hispanicum*, *Matricaria aurea*, *Carduus pycnocephalus*, *Kalpinia linearis*, *Statice spicata*, *Anchusa Milleri* (?), *Lithospermum tenuiflorum*, *L. arvense*, *Linaria Ascalonica*, var. *brachyloba*, *Post L. albifrons*, *Plantago albicans*, *Muscari racemosum*, *Belle valia flexuosa*, *Gasea foliosa*, *Vulpia pectinella*, *Scleropoa Memphitica*, *Nardurus tenuiflorus*, *Bromus Matritensis*, *Aegilops crassa*.

At an early hour in the morning Sheikh Asaad came to pay us a visit, and bring me a lamb as a thankoffering. Eleven years ago he was shot by a Palmyrene, during an armed contest over the election of the present Sheikh of Palmyra, Mohammed Abdallah. The ball passed through the pleura and injured one of his ribs. When he arrived at the Johanniter Hospital at Beirût he was in a pitiable condition. A native quack had introduced into the wound bits of rags as tents for drainage. These had slipped one by one into the chest, and, by their increasing fetor, had brought about an irritative cough and fever, which had nearly worn out his strength. When the wound was laid open to remove these, the fissure between the lobes of the lung could be seen back to the roots of the lung, and the mechanism of expansion and contraction of the organ clearly made out. He was entirely cured at the hospital, and returned with a profound sense of gratitude to the friends whom he had found so far away. He showed his gratitude, not only by bringing the lamb, but by remaining as a guard of honour at our tent during our stay, and by giving us much information about the people and the homeward route.

In the afternoon I took a comprehensive ride about the city, outside the cultivated fields. Beside gaining many interesting views of the city, I found at the edge of the wheatfields. *Malcolmia Bungei*, var. *glabrescens* (new for Syria), *M. Africana*, var. *squarrosa*, *Cleome glaucescens*, *Helianthemum Niloticum*, *Silene Olivieri*, *Onobrychis Olivieri*, *Asperugo procumbens*, *Veronica triphyllos*, *Ixiolirion montanum*, *Muscari racemosum*, *Bellveria flexuosa*.

The fields and orchards are irrigated by water from four different aqueducts. The largest stream is that flowing from the great fountain, south-west of the ruins. The next is that which runs along the south wall of Justinian, and turns northward near the bend in the street of columns, and runs beyond the northern limits of the ruins. At two points on this aqueduct the owners have constructed staircases leading down to the water for the convenience of the villagers, who draw most of their water supply from this source. The owners, the Sheikhs Mohammed Abdallah, Abdallah Salim, and As'ad el-Faris, bought this aqueduct of the government for fifty Turkish liras, and cleaned it out at an expense of two hundred more. Until this was done, two years since, all the village supply of water was drawn from the great aqueduct, outside the walls. It is interesting to watch the erect carriage of the women as they walk along, spinning or swinging their arms, and often turning their necks and heads as they chat with one another, while they carry a jar with sixty pounds of water on their heads, never so much as touching it with a finger, however violent the wind may be. I asked one of the Arabs how they learned to do this. He replied that it is a matter of coquetry with them to carry a jar gracefully, and that they practise with much care from childhood to acquire a knack which commends them to the favourable notice of admirers of the other sex.

There are two other canals which have been cleaned out, and supply water for irrigation. The Sheikh of the village assured me that there

were several more to the north of these. They are all ancient conduits, and indicate a copious water supply for the city. Sheikh Mohammed assured me that the wells of Abul-Fawâris, half an hour west of the city, are also on the line of another aqueduct, large sections of which are to be seen along the valley of tombs.

To regulate the apportionment of water, a man stands at one of the street crossings in the Temple of the Sun, with an hour-glass in his hand, and takes the time allotted to each proprietor along the line of the public canal. The tidings of the expiration of the time are communicated by a call from the roofs of the houses.

The large canal, which is public property, is open from the point of its emergence from the natural tunnel out of which it flows. The others are covered, and lie at a depth of from ten to twenty feet below the surface.

During the day we bathed in the great spring. It was a strange sensation to swim away into the darkness and find the water growing deeper and deeper the farther we penetrated, until it was far above our heads. We did not dare to swim very far into the heart of the mountain, lest the sulphurous vapours might cause asphyxia when beyond the reach of help.

A horde of people pressed about us with copper coins, mostly of the Turkish and Cufic mintings, with a few of Greek and Roman date. All



were in the state of defacement so often noted in Palmyrene coins, attributable to the sulphurous emanations from the soil. They also brought us a few clay scarabei and seals, and many squares of clay, about the size of one and two drachm weights. These are supposed to have been used as money. The impressions taken from two varieties may serve as

illustrations of the smaller kinds. One of a larger size and different shape was brought to me. An imperfect scarabæus, apparently Assyrian, was also brought. It has a winged lion with a female head.

(A) עֲלֵשׁ

(B)

נִרְגָּלִי כֹ

מִמִּי

נִרְגָּלִי אֶחָד

וְיִיט

(C)

טִנְטִי טִנְטִי טִנְטִי

סִמְאֵן

לִמְאֵל

(D)

טִנְטִי אֶחָד

(E)

מִטְעֵת

נִרְגָּלִי אֶחָד

נִרְגָּלִי אֶחָד

נִרְגָּלִי

The Mudir has a small collection of busts of rather inferior workmanship. He had, however, a large stone in front of the school-house, which he ordered to be turned face upward for our benefit (p. 35). It seems to be the father and mother of a family of three children. I took squeezes of the inscriptions, which are between the heads of the figures, copies of which are given above. The photograph was



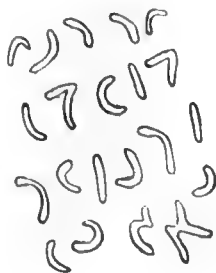
obtained at a subsequent visit. The stone is about 5 feet long by 3 broad. The mother is represented smaller than the boys, following the conventional ideas of Oriental artists.

I secured a head in a sufficiently good state of preservation to show the headdress and coiffure, and the Palmyrene type of features, as also the



earrings and necklace, as seen in the accompanying cut taken from a photograph.

I also sketched a male bust, which gives the characteristic cut of the hair, and the arrangement of the drapery, as found in all the male



figures I saw. The characters of the inscription differ by their simplicity from those of the other tablets.

The workmanship is coarse, and the stone soft, and unsuitable for statuary. The greatest misfortune of Palmyrene architecture and art was the want of a suitable stone, in which to express the ideas of their time. The building stone is a limestone, full of veins and cleavages, so that it was almost impossible to carve a perfect Corinthian capital out of it, and the influence of the wind and sun and rain is seen in the defacement and almost destruction of a large number of elaborate details, which were undertaken in spite of the discouraging material. The statuary is chiselled out of a soft argillaceous limestone, easily cut, but as easily defaced, and incapable, like marble, of taking the finer expression which Greek and Italian marbles are so well adapted to receive and retain.

In the middle of the afternoon the clouds rolled up heavily from the west, and a few drops of rain fell. It, however, cleared up enough to enable me to complete my study of the environs of the city. At night we piled our collections in the middle of the tent, and covered them with all our available sacks and the tent carpet. It was well that we did so, as we had a series of smart showers in the night, and the rain sifted in more or less through the tent. None of our plants were injured, thanks to the precautions taken.

The chains of Jebel 'Ain-el-Wu'ûl, and Jebel-'Antar, and the other mountain ranges parallel to them, or forming angles with them, terminate, at the longitude of Palmyra, in a somewhat continuous chain, trending somewhat east of north. From the foot of this chain the great plain of the Euphrates stretches away to the east, with scarcely a knoll to break the vast expanse. An hour's distance from Palmyra is the *Sebaka*, which we explored during our subsequent visit. At the time of the present visit it was a lake several miles in length and breadth.

*Thursday, April 10, Palmyra.*—After a rainy night, the clouds rolled off, and the sun came out at about 10 a.m., with promise of a fair day. We immediately broke camp and started on our westward journey at 11 a.m. We took in the picturesque Turkish castle on the hill, and the tombs in the valley on our way. The view from the edge of the moat over the city is very fine. Doubtless that from the top of the castle is finer, but we did not think it worth the trouble of clambering up the rocks to the foot of the wall to obtain it.

After lunching in the shadow of the aqueduct near the western end of the valley of tombs, we visited the wells of Abul-Fawâris, half an hour west of the town. We found the water sweet and cool. It flows from one well to another by an aqueduct, about twenty feet below the surface. Although we did not take the level by barometer, there is no reason to doubt the correctness of Sheikh Mohammed's opinion, that this aqueduct was continuous with that in the street of tombs. As before mentioned, it is intended to re-establish the connection with the part of the aqueduct in the street of tombs, and lead the water again to the town. The ground about these wells was moist, and bore at the time an abundant crop of green forage, on which a herd of cows was feeding as

we passed. Among the plants growing in this meadow were *Hutchinsia petraea* (new for our district), *Onobrychis Olivieri*, *Tetradiclis Salsa*, and a species of *Astragalus* allied to *A. bombycinus*, perhaps a variety of it.

Three-quarters of an hour farther on we passed a hill fifteen minutes north of the road, on which we saw ruins. I rode up the hill and found the pedestal and capital of a column, but no shaft anywhere in sight. There were no other ruins. It is interesting to speculate whether the shaft was ever brought to the spot. It could not be easily hidden on a conspicuous hill like that on which the base is erected. There would be no motive to remove a shaft elsewhere. Unfinished monuments are very common in the East. There was no inscription to give any hint as to the date or purpose of these remains.

Immediately after passing this hill, we saw a heavy, black cloud gather an hour ahead on our path, and the play of lightning and rolling of thunder made us sure that there must be almost a waterspout at the theatre of the storm. The cloud, however, soon rolled away over the range of Jebel-'Ain-el-Wu'ûl, and two hours later we were wading in a suddenly-formed swamp, in water in some places 3 inches deep, where two days before we had passed over a desert baked and cracked by the fierce sunshine. This great salt marsh, covering about a hundred square miles, was overgrown with *Spinacea tetrandu* (not before noted in Syria), with here and there mounds, on which grew clumps of *Tamarix tetragyna* and *Lycium Barbarum*. In the most swampy places we met with the curious spike of *Cynomorium coccineum* and *Phelipea lutea*.

In the middle of the swamp we met with three bases of columns, or altars. Two were entire, the third had only the sub-base. At a distance of a hundred yards to the west was a portion of a pillar, half buried in the soil. As we photographed these bases at a subsequent visit, and copied the inscriptions, I will reserve further comment on them for the narrative of that journey.

We arrived at el-Beida at 6 p.m., after a ride of five hours from the street of tombs at Palmyra.

*Friday, April 11th, 'Ain-el-Beida.*—At our previous visit, three days before, our barometers had read W. 27·8, B. 28·2. They now read W. 27·87, B. 28·45. The mean will give by W. 1,970 and by B. 1,700 feet above the sea.

*Heights above Mediterranean Sea.*

				Watson.		Browning.
Damascus	....	....	....	2,325	....	2,325
Maarca	..	....	....	4,200	....	4,200
"	....	....	....	4,200	....	4,200
Ridge ab. Ma'lula	....	....	....	5,500	....	—
Yebrûd	....	....	....	4,550	....	4,600
"	....	....	....	4,525	....	4,525
Deir Atiyah	....	....	....	4,000	....	4,025
Qaryetein	....	..	....	2,660	....	2,600

*Heights above Mediterranean Sea—cont.*

			Watson.		Browning.
'Ain el-Wu'ûl....	....	....	2,740	....	2,300
Top of Mount near Wu'al ..			3,650	....	3,600
'Ain-el-Beida	....	....	1,940	....	1,800
"	....	....	2,000	....	1,600
Palmyra	....	....	1,480	....	1,300
El-Jebâh	....	....	2,550	....	2,285
Abu Dâli	....	....	2,070	..	2,170
Hems ....	....	..	1,625	....	1,770
Hadidah	....	....	1,500	....	1,525

These are given without any allowance for temperature, and on the assumption that the instrumental error of each was constant.

A cold and dense fog covered the plain when we arose. We could not see a hundred feet away. Nevertheless, our guides decided that we could march, and we made an early start. For two hours the mist continued without a sign of breaking but by 10 a.m. it had rolled entirely away. At 11 we began to see figures moving along the south-western edge of the plain. At first our guides were uneasy, suspecting that it might be a marauding party, but it soon became evident that it was a large tribe in motion, with all its flocks and herds, migrating in the direction of Hems and Hamath. A little before noon our line of march crossed theirs, and we had some conversation with those whom we met. This tribe migrates in this direction every spring, to pasture the broad fields of the Orontes Plain after the harvest is over.

During the middle of the day the most characteristic plant which we found was *Ferula Blanchei*, a low species of that genus, about 18 inches high, called by the natives Abu-et-Tayyib. At the time of our journey the stalks were just coming into flower, and were quite tender and succulent. Our muleteers and guides stripped them of leaves, and ate freely of them. We tasted them, and found them not unlike celery. Doubtless they would make a very good salad, and also be palatable boiled, and served with a sauce, like asparagus. We also collected *Scorzonera lanata*, *Hyoscyamus muticus*, *Asphodeline brevicaulis*, beside other plants before mentioned.

For several hours in the middle of the day we were in sight of el-Qasr, which we passed a little after noon, two hours to the south of our route.

At about sunset we passed a small salt pool, among rugged hills, and at 7.30 p.m. reached el-Jebâh, where there is a perennial stream a foot or so in width, and 2 or 3 inches in depth. We had been told that there was a river at Jebâh. There is, in point of fact, a torrent bed by the hamlet, but it only runs during heavy showers. Great is the value of the tiniest rill in this parched land. It was quite dark before we had our tent pitched and our supper eaten, and we lay down to a rest earned by thirteen and a-half hours of hard work.

*Saturday, April 12th, El-Jebâh.*—6 a.m. Barometers, W. 27.3, B. 27.72;

height, W. 2,550, B. 2,285 feet—a little lower than Qaryetein, a fact verified subsequently.

Arriving as we had done the night before, at dusk, we obtained the impression of a village, an impression not borne out by the three or four miserable ruins of huts which we saw in the morning. We found, however, a field of wheat, of about 2 acres in extent, which is irrigated by the rill beside which we were encamped. Three old men live here to sow, tend, and reap this little Eden. And out of it they not only get their own support, but give half of the produce to Fayyad Agha of Qaryetein, who is the owner. We could not have had a more forcible commentary on the small value of human labour here than was furnished by this fact. In July, when we passed another night at el-Jebâh, we found these three old men threshing out the produce of the field, and irrigating some summer crops which they had planted.

The water at el-Jebâh has a decided odour and taste of sulphur, but much less pronounced than that of el-Beida and Palmyra.

At an early hour we broke camp, and rode for two hours to el-Ghundhur, a wretched village at the edge of the desert. A ruin of Roman or more ancient times exists here. Only the lower courses of stone, however, are in place. The other material seems to have been pretty well broken up to build the village. Two copious springs of good water serve not only for drinking places, but to irrigate a considerable area of cultivated ground.

As we had now cleared the desert, we dismissed Khalid and Mohammed, our guards and guides through the wilderness. They returned to Qaryetein, three hours away, while we pursued our journey to es-Saït, six hours to the north-east of el-Ghundhur. Our path lay over rolling, barren hills, which were not at that time utilised even for grazing. We passed a number of dolmens by the way, but all of rude construction and apparently modern.

At es-Saït we came upon the first traces of grain growing without any irrigation, a fact which indicated that we had come within the sphere of regular and reliable rains. On our way from el-Ghundhur we had occasional floral evidence that we were passing from the desert to the fertile regions. *Allium Orientale*, *Astragalus Mitchelli* Post (a new species with pretty violet flowers, growing in great abundance), and *Camelina lasiocarpus* introduced us, and after passing es-Saït we rapidly came one by one to the familiar plants of Coele-syria and the Hems tableland; *Onobrychis Sativa*, *L. var Montana*, *Alkanna strigosa*, *Veronica Orientalis*, *Salvia acetabulosa*, and, above all, *Asphodelus microcarpa*, the universal plant of the upland prairies as well as of the coast.

From es-Saït to Abu-Dâli we passed for three hours over a rolling park-like country, more and more cultivated with broad and fertile wheat fields. We reached Abu Dâli at 9 p.m., after a fourteen hours' ride, and were glad to look forward to the rest of the coming Sabbath, and the end of our desert journey.

On Monday we passed through Hems, and on Tuesday afternoon reached Tripoli, whence we returned by steamer to Beirût.

The following is a list of the plants collected during this journey. The italicised words are the names of plants new to this region. Those in small capitals of new species :—

#### I.—RANUNCULACEÆ.

1. *Adonis dentata*, Del. Syrian desert, common.
2. *Ranunculus Damascenus*, Boiss. et Gaill. Damascus.
3. *Ceratocephalus falcatus*, Pers., var. *vulgaris*, Boiss. Common on the Damascus plateau and in the desert.
4.        "                "        var. *exscapus*, Boiss. Damascus plateau.

#### II.—PAPAVERACEÆ.

5. *Glaucium Arabicum*, Fres. Qaryetein to Wadi el Bâridi.
6. *Rœmeria hybrida*, Sih. Desert.
7. *Hypecoum grandiflorum*, Boiss. Common in the desert.

#### III.—FUMARIACEÆ.

8. *Fumaria micrantha*, Lag. Damascus.

#### IV.—CRUCIFERÆ.

9. *Matthiola Damascena*, Boiss. Yebrûd to el-Mahîn.
10. *Arabis albida*, Stev. var. *umbrosa*, Boiss. Ma'arrâh to Yebrûd.
11. *Aubrietia Libanotica*, Boiss. Rocks near Yebrûd.
12. *Alyssum montanum*, L. Yebrûd.
13.        "       *campestre*, L. Common everywhere.
14.        "       *calycinum*, L. Jebel Qalamûn.
15.        "       *dasycarpum*, Steph. Nebk to Qaryetein. Desert.
16.        "       *aureum*, Fenzl. Qaryetein to el-Bâridi.
17.        "       *meniocoides*, Boiss. Nebk to Qaryetein. Desert, common.
18. *Chrysochamela velutina*, D. C. Desert.
19. *Erophila minima*, C. A. M. Yebrûd. Desert.
20.        "       *præcox*, Stev. Desert.
21. *Malcolmia Bungei*, Boiss. var. *glabrescens*, Boiss. Palmyra.
22.        "       *Africana*, L., type. Palmyra to 'Ain el Beida.
23.        "       "       var. *squarrosa*, Post. Palmyra.
24.        "       *torulosa*, Desf., var. *contortuplicata*, Boiss. Desert.
25.        "       *crenulata*, D. C. Antilebanon and Desert. Common.
26. *Sisymbrium pumilum*, Steph. Yebrûd.
27.        "       *Sophia*, L. Common throughout.
28.        "       *runcinatum*, Lag. Wadi el Bâridi.
29.        "       *GRANDIFLORUM*, Post, Sp. nov. Syrian desert.

30. *Erysimum purpureum*, Auch, var. *Blancheanum*, Post (E. *Blancheanum*, Boiss.). Plateau of Antilebanon and Syrian Desert.
31. *Leptaleum filifolium*, D. C. Syrian Desert. Palmyra
32. *Camelina lasiocarpa*, Boiss et Bl. Es-Saït.
33. *Brassica Tournefortii*, Gouan. En-Nebk to el-Mahîn.
34. „ *deflexa*, Boiss. Qaryetein to el-Bâridi.
35. *Diplotaxis crucoides*, L. Damascus.
36. *Lepidium perfoliatum*, L. Damascus.
37. *Thlaspi perfoliatum*, L. Yebrûd plateau.
38. *Iberis odorata*, L. Damascus plain.
39. *Æthionema cristatum*, D. C. Qaryetein to el-Bâridi.
40. *Hutchinsia petraea*, L. Wells of Abul-Fawâris, Palmyra.
41. *Clypeola jonthlaspi*, L. Qaryetein to el-Bâridi.
42. *Isatis Aleppica*, Scop. Qaryetein to el-Bâridi.
43. *Teciera glastifolia*, D. C. En-Nebk to el-Mahîn.
44. *Chorispora Syriaca*, Boiss. Damascus to el Mahîn.

## V.—CAPPARIDEÆ.

45. *Cleome glaucescens*, D.C. Palmyra.

## VI.—CISTACEÆ.

46. *Helianthomum Niloticum*, L. Palmyra. Desert everywhere.
47. „ *resicarium*, Boiss. Qaryetein to el-Bâridi.

## VII.—VIOLARIÆ.

48. *Viola ebracteolata*, Fenzl. Near Yebrûd.

## VIII.—SILENEÆ.

49. *Silene coniflora*, Oth. Common throughout plateaux.
50. „ *bipartita*, Desf. var. *Olivieri*. Palmyra.

## IX.—ALSINEÆ.

51. *Holosteum umbellatum*, L. Damascus. Desert. Palmyra.
52. *Alsine picta*, S et S. Damascus to Palmyra.
53. *Spergularia diandra*, Guss. Palmyra.

## X.—TAMARISCINÆ.

54. *Tamarix tetragyna*, Ehr. Ain-el-Beïda to Palmyra.

## XI.—MALVACEÆ.

55. *Malva Ægyptia*, L. Desert.  
 56. „ *parviflora*, L. Palmyra.

## XII.—ZYGOPHYLLÆ.

57. *Zygophyllum eurypterum*, Boiss et Buhse. Wadi-el-Bâridi.  
 58. *Tetradiclis salsa*, Stev. Palmyra to 'Ain-el-Beida.

## XIII.—GERANIACEÆ.

59. *Erodium cicutarium*, L. Qaryetein.  
 60. „ *cichonium*, L. Desert.  
 61. „ *laciniatum*, Cav. Palmyra.  
 62. „ *malacoides*, L. Palmyra.  
 63. „ *glaucophyllum*, Ait. Palmyra.  
 64. „ *Gaillardoti*, Boiss. Yebrûd to Qaryetein.

## XIV.—RHAMNACEÆ.

65. *Rhamnus Palæstina*, Boiss. Jebel-'Ain-el-Wu'ûl.

## XV.—ANACARDIACEÆ.

66. *Pistacia mutica*, F. and M. Wadi-el-Bâridi.

## XVI.—LEGUMINOSÆ.

67. *Medicago tribuloides*, Dess. Palmyra.  
 68. *Trigonella micrantha*, C. A. M. Damascus.  
 69. „ *azurea*, C. A. M. Palmyra.  
 70. „ *filipes*, Boiss. Palmyra.  
 71. „ *Arabica*, Del. Palmyra.  
 72. *Astragalus cruciatus*, Link VAR *BRACHYLOBUS*, Post. Palmyra.  
 73. „ *callichroüs*, Boiss. Palmyra.  
 74. „ *conduplicatus*, Bertol. Desert.  
 75. „ *tuberculosus*, D. C. Borders of desert.  
 76. „ *PALMYRENSIS*, Post. Near Wells of Abul-Fawâris.<sup>1</sup>  
 77. „ *cretaceus*, Boiss. et Ky. Borders of desert.  
 78. „ *mollis*, M. B. En-Nebk to el-Mahîn.  
 79. „ *Aleppicus* Boiss. Damascus plain.  
 80. „ *Forskahlei*, Boiss. Desert. Palmyra.

<sup>1</sup> Perhaps a variety of *A. bombycinus*, Boiss.

81. *Astragalus MITCHELLII*, Post. Sp. nov. El-Jebâh to el-Ghundhur ;  
Es-Saït.  
82. „ *ancistrocarpus*, Boiss et Haussk. Desert.  
83. „ *angulosus*, D. C. Chalk hills north of Damascus.  
84. „ *Trachoniticus*, Post. Syrian Desert.  
85. *Onobrychis sativa*, L. var. *montana*, Boiss. Border of desert.  
86. „ *Olivieri*, Boiss. Palmyra.  
87. *Vicia Noëana*, Reut. Hems to Hadîdah.

## XVII.—ROSACEÆ.

88. *Cerasus microcarpa*, C. A. M. Wadi-el-Harîr.  
89. „ *UMBELLATA*, Post. Sp. nov. Wadi-el-Harîr.  
90. *Prunus ursin* i, Ky. Ma'arrah to Yebrûd.  
91. „ *monticola*, C. Koch Wadi-el-Harîr.  
92. *Amygdalus communis*, L. Antilebanon. Ma'arrah plateau.  
93. *Rosa canina*, L. Yebrûd.

## XVIII.—CRASSULACEÆ.

94. *Umbilicus Libanoticus*, Boiss. Jebel-'Ain-el-Wu'ûl.

## XIX.—MESEMBRYANTHEMACÆ.

95. *Aizoon Hispanicum*, L. Palmyra.

## XX.—UMBELLIFERÆ.

96. *Ferula Blanchei*, Boiss. Desert.

## XXI.—

97. *Valerianella truncata*, Rechb. Qaryetein.  
98. „ *Kotschyi*, Boiss. Desert.

## XXII.—CONYOSITÆ.

99. *Bellis pereunis*, L. Ma'arrah to Yebrûd.  
100. *Chamæmelum grandiflorum*, Boiss et Haussk. Ma'arah to Yebrûd.  
101. „ *auriculatum*, Boiss. El-Beîda to el-Jebâh.  
102. *Matricaria aurea*, L. Palmyra.  
103. *Achillæa* „ var. *discoidea*, Boiss. Damascus.  
104. *Artemisia Herba-alba*, L. Desert and contiguous regions.  
105. *Senecio coronopifolius*, Desr. Desert.  
106. *Carduus pycnocephalus*, Jacq. Palmyra.  
107. *Centaurea*, sp. Palmyra.

- 108. *Kœlpinia linearis*, Pall. Palmyra.
- 109. *Lagoseris bifida*, Vis. Desert.
- 110. *Taraxacum officinale*, L. Ma'arrah to Yebrûd.
- 111. *Zollikoferia*, sp. Desert.
- 112. *Tragopogon buphtalmoides*, Boiss. var. *stenophyllum*, Boiss. Qarye-  
tein to 'Ain-el-Beïda.
- 113. *Scorzonera lanata*, M. B. Table lands. Desert.
- 114. „ *papposa*, D. C. Desert.

## XXIII.—PRIMULACEÆ.

- 115. *Androsace maxima*, L. Damascus plain

## XXIV.—PLUMBAGINACEÆ.

- 116. *Statice spicata*, Willd. Palmyra.

## XXV.—APOCYNACEÆ.

- 117. *Vinca Libanotica*, Zucc. Yebrûd.

## XXVI.—BORAGINEÆ.

- 118. *Asperugo procumbens*, L. Palmyra.
- 119. An undetermined species of Boraginea, genus uncertain Western  
half of desert.
- 120. *Anchusa Milleri*, Willd? Desert. Palmyra.
- 121. *Lithospermum tenuiflorum*, L. Palmyra.
- 122. „ *arvense*, L. Palmyra.
- 123. *Arnebia cornuta*, Ledeb. Palmyra. Desert.
- 124. *Alkanna strigosa*, Boiss. Es-Sait to Abu-Dâli.

## XXVII.—SOLANACEÆ.

- 125. *Lycium Barbarum*, L. Clumps in desert.
- 126. *Hyoscyamus reticulatus*, L. Qaryetein.
- 127. „ *muticus*, L. El-Beïda to el-Jebâh.

## XXVIII.—SCROPHULARIACEÆ.

- 128. *Verbascum Galilæum*, Boiss. Hems to Tripoli.
- 129. „ *Damascenum*, Boiss? Palmyra.
- 130. *Linaria Ascalonica*, Boiss., var. *BRACHYLOBA*, POST. Palmyra.
- 131. „ *albifrons*, S. and S. Palmyra.

132. *Scrophularia zanthoglossa*, Boiss. Hems to Tel-Kelakh.  
 133. „ *variegata*, M. B., var. *Libanotica*, Boiss. Damascus to Ma'arrah.  
 134. *Veronica Orientalis*, Mill. Es-Saït to Abu Dâli.  
 135. „ *triphyllos*, L. Palmyra. Nebk to Qaryetein.

## XXIX.—OROBANCHACEÆ.

136. *Phelipea lutea*, Desf. Desert in salt marshes.

## XXX.—LABIATÆ.

137. *Salvia acetabulosa*, Vabl. Es-Saït to Abu-Dâli.  
 138. „ *verbascifolia*, M. B. En-Nebk to el Mahîn.  
 139. „ *controversa*, Ten. Qaryetein.  
 140. „ *Verbenaca*, L., var. *vernalis*, Boiss. Qaryetein.  
 141. *Nepeta cryptantha*, Boiss. et Haussk. Hems to Tel Kelakh.  
 142. *Lallemantia Royleana*, Wall. El-Bâridi to 'Ain-el-Beïda  
 143. *Zizyphora tenuior*, L. Desert.  
 144. *Stachys Arabica*, Horn. Hems to el-Hadîdah.

## XXXI.—PLANTAGINÆÆ.

145. *Plantago albicans*, L. Palmyra.

## XXXII.—CHENOPODIACEÆ.

146. *Spinacia tetrandra*, Stev. Palmyra to 'Ain-el-Beïda.

## XXXIII.—SALSOLACEÆ.

147. *Kochia* sp. Desert.  
 148. *Atriplex Palæstinum*, Boiss. Palmyra.  
 149. *Chenolea Arabica*, Boiss. Desert.

## XXXIV.—MYROBALANACEÆ.

150. *Cynomorium coccineum*, L. Palmyra to 'Ain-el-Beïda.

## XXXV.—EUPHORBIACEÆ.

151. *Euphorbia Apios*, L. Desert.

## XXXVI.—ORCHIDACEÆ.

152. *Orchis incarnata*, L. Hems.

## XXXVII.—IRIDACEÆ.

153. *Iris Germanica*, L. Hems to Tripoli.  
 154. „ *Sari*, Baker. Desert.  
 155. „ *Palæstina*, Baker var. CÆRULEA, POST. Desert.  
 156. *Ixiolirion montanum*, Lab. Palmyra.

## XXXVIII.—LILIACEÆ.

157. *Asphodelus microcarpa*, Viv. Es-Saït to Abu-Dâli  
 158. *Asphodeline lutea*, L. Hems.  
 159. „ *brevicaulis*, Bert. El-Beïda to el-Jebâh.  
 160. *Allium Rothii*, Zucc. Desert.  
 161. „ *Orientale*, Boiss. El-Ghundhur to Es-Saït  
 162. MUSCARI ALBICAULE, POST, Sp. nov. El-Bâridi to Ain-el-Beïda.  
 163. „ *racemosum* L. Palmyra. Table lands  
 164. „ *neglectum*, Guss. En-Nebk to El Mahîn  
 165. *Bellevalia ciliata*, Cyr. Desert.  
 166. „ *flexuosa*, Boiss. Antilebanon. Palmyra  
 167. „ *densiflora*, Boiss var. LONGIPES, POST Hems.  
 168. *Ornithogalum lanceolatum*, Lab. Yebrûd.  
 169. „ *montanum*, Cyr. Jebel Qalamûn.  
 170. „ „ var. *platyphyllum*, Boiss Deser  
 171. „ *tenuifolium*, Guss. Desert.  
 172. *Tulipa montana*, Lindl. var. AMBLYOPHYLLA POST. Jebe Ain-el-Wu'ûl.  
 173. „ *biflora*, L. En-Nebk to Qaryetein.  
 174. *Gagea reticulata*, Pall. Jebel Qalamûn.  
 175. „ *foliosa*, Presl. Yebrûd. Palmyra.  
 176. *Lloydia rubro-viridis*, Baker. Jebel Qalamûn.

## XXXIX.—CYPERACEÆ.

177. *Carex stenophylla*, Vahl. Ma'arrah to Zebrûd Desert

## XL.—GRAMINEÆ.

178. *Sphænopus divaricatus*, Rehb. Desert.  
 179. *Poa bulbosa*, L. Everywhere in the desert.  
 180. „ *Sinaica*, Boiss. En-Nebk to Qaryetein. Desert  
 181. „ *Timoleontis*, Held. El-Beïda to el-Jebâh.  
 182. *Vulpia pectinella*, D. C. Palmyra.  
 183. *Festuca inops*, Del. Wadi el Bâridi.  
 184. *Sclerochloa dura*, Beauv. Qaryetein.  
 185. *Scleropoa Menophitica*, Spr. Palmyra

186. *Nardurus tenuifloras*, Boiss. Palmyra.  
 187.           *Orientalis*, Boiss. Qaryetein to el Bâridi.  
 188. *Bromus matritensis*, L. Palmyra.  
 189. *Aegilops crassa*, Boiss. Palmyra.  
 190. *Rhizocephalus Orientalis*, Boiss. Desert.

## XLI.—NAIADACEÆ.

191. *Potamogeton crispus*, L. Canal ; Damascus.

## XLII.—CHARACEÆ.

192. *Chara*, sp. Great fountain ; Palmyra.

## XLIII.—LICHENES.

193. *Lecanora lentigera*, Web. Incrustation in salty ground.

## COMPARISON OF THE ATMOSPHERIC PRESSURE IN PALESTINE AND IN ENGLAND IN THE TEN YEARS ENDING 1889.

By JAMES GLAISHER, F.R.S.

IN the quarterly reports of the Palestine Exploration Fund, beginning July, 1888, and ending October, 1890, the results of observations taken at Sarona in the ten years ending 1889 have been published.

The observations at Sarona were taken a little north of the great orange groves of Jaffa, at a place one mile and a half from the sea shore, and about 50 feet above the sea level, in lat.  $32^{\circ} 4'$  N. and long.  $34^{\circ} 34'$  E., by Herr J. Dreher.

The observations at Blackheath were taken during the same ten years, at about 150 feet above the sea level, in lat.  $51^{\circ} 29'$  and long.  $0^{\circ} 1'$  E., by myself.

The observations at Sarona have been reduced to  $32^{\circ}$  Fah., and those at Blackheath have been corrected for the difference of elevation of 100 feet and reduced to  $32^{\circ}$  Fah.

## METEOROLOGICAL OBSERVATIONS.

TABLE I. shows the Highest Reading of the Barometer at *Sarona* in each month.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	in. 30·269	in. 30·235	in. 30·220	in. 30·088	in. 30·262	in. 30·151	in. 30·128	in. 30·285	in. 30·166	in. 30·073	in. 30·188
February..	30·155	30·007	30·249	30·099	30·230	30·097	30·065	30·239	30·137	33·090	30·137
March ..	30·166	30·175	30·132	30·060	30·133	30·199	30·115	30·063	30·144	30·059	30·116
April ..	30·051	30·035	30·114	30·042	30·013	29·995	30·034	29·993	29·992	30·051	30·032
May ..	29·947	29·957	30·017	29·953	29·946	29·905	30·007	30·061	29·939	29·918	29·965
June ..	29·953	29·957	29·995	29·805	29·930	29·886	29·845	29·865	29·874	29·942	29·905
July ..	29·791	29·860	29·738	29·771	29·899	29·793	29·795	29·893	29·809	29·823	29·823
August ..	29·827	29·871	29·801	29·803	29·849	29·825	29·754	29·766	29·767	29·788	29·895
September	29·925	29·940	29·949	29·901	30·015	30·073	29·893	29·966	29·943	29·882	29·979
October ..	30·018	29·994	29·983	29·977	30·002	29·970	29·939	29·964	30·048	30·019	29·991
November	30·091	30·076	30·073	30·020	30·063	30·088	30·109	30·099	30·139	30·136	30·089
December	30·180	30·232	30·153	30·106	30·143	30·162	30·164	30·087	30·272	30·185	30·168
Means ..	30·031	30·028	30·040	29·969	30·040	30·030	29·987	30·023	30·019	29·997	30·017

In this table, the fact of the reading of the barometer in the six months from May to October so seldom reaching 30 inches is the first to notice. The reading exceeds 30 inches in every January, February, March, November, and December ; in seven Aprils out of the ten ; in three Mays, in two Septembers ; in four Octobers ; and there is no instance in the months of June, July, and August of a reading so high as 30 inches.

The maximum for the year has occurred in—

					The maximum was	
					Ins.	
January, 4 times, viz., in 1880, 1881, 1884,						
and 1887	....	....	....	....	30·285	in 1887
February, once	....	....	....	....	30·249	,, 1882
December, 5 times, in 1883, 1885, 1886, 1888,						
and 1889	....	....	....	....	30·272	,, 1888

The lowest of the monthly maximum readings has occurred five times in July and five times in August, viz. :—

					The lowest was	
					Ins.	
July, in 1880, 1881, 1882, 1883 and 1885	....				29·771	in 1883
August, in 1884, 1886, 1887, 1888, and 1889					29·754	,, 1886

The numbers at the foot of the columns give the mean of each year ; the largest, 30·04, was in 1882 and 1884, and the smallest, 29·969, in 1883.

In the last column is shown the mean of the ten highest readings in each month. The highest, 30·188 is in January ; the next in order is 30·168 in December. The lowest is 29·805 in August ; the next in order is 29·823 in July.

The mean of all is 30·017 inches.

## METEOROLOGICAL OBSERVATIONS.

TABLE II. shows the Highest Reading of the Barometer at *Blackheath* in each month.

Months.	Years.												Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.			
January ..	in. 30·606	in. 30·515	in. 30·890	in. 30·597	in. 30·568	in. 30·354	in. 30·064	in. 30·622	in. 30·647	in. 30·656	in. 30·552		
February..	30·406	30·195	30·771	30·765	30·411	30·132	30·659	30·664	30·280	30·342	30·462		
March ..	30·428	30·469	30·577	30·660	30·204	30·561	30·349	30·564	30·266	30·517	30·460		
April ..	30·376	30·193	30·293	30·592	30·031	30·251	30·209	30·639	30·175	30·168	30·293		
May ..	30·408	30·592	30·414	30·331	30·375	30·021	30·433	30·340	30·422	30·010	30·342		
June ..	30·167	30·255	30·266	30·332	30·268	30·346	30·226	30·388	30·175	30·358	30·280		
July ..	30·114	30·271	30·409	30·105	30·155	30·381	30·275	30·271	30·029	30·301	30·231		
August ..	30·194	30·265	30·215	30·240	30·246	30·283	30·176	30·289	30·207	30·210	30·233		
September	30·436	30·364	30·314	30·208	30·307	30·295	30·361	30·421	30·402	30·387	30·350		
October ..	30·353	30·414	30·464	30·470	30·584	30·094	30·307	30·546	30·406	30·116	30·375		
November	30·396	30·379	30·066	30·357	30·490	30·361	30·658	30·259	30·149	30·609	30·372		
December	30·599	30·558	30·356	30·520	30·170	30·511	30·525	30·442	30·425	30·544	30·465		
Means ..	30·374	30·372	30·420	30·431	30·401	30·305	30·353	30·454	30·298	30·352	30·368		

A very marked difference is shown in this table from the corresponding one at Sarona, the reading being above 30 inches in every month.

The maximum for the year has occurred in—

						The highest was	
						Ins.	
January, 4 times, in 1880, 1882, 1888, and 1889	....	....	....	....	....	30·890	in 1882
February, 3 times, in 1883, 1886, and 1887						30·765	,, 1886
March, once	....	....	....	....	....	30·561	,, 1885
May, once	....	....	....	....	....	30·592	,, 1881
October, once	....	....	....	....	....	30·584	,, 1884

Thus a very marked difference, excepting in the case of January, is shown from the times of maximum pressure at Sarona.

The lowest maximums for the year has occurred in—

						The lowest was	
						Ins.	
January, once	....	....	....	....	....	30·064	in 1880
February, once	....	....	....	....	....	30·195	,, 1881
April, once	....	....	....	....	....	30·031	,, 1884
May, twice, in 1885 and 1889				....	....	30·010	,, 1889
July, 3 times, in 1880, 1883 and 1888					....	30·029	,, 1888
November, twice, in 1882 and 1887	....				....	30·066	,, 1882

The numbers at the foot of the columns give the mean of each year; the largest, 30·454 inches, in 1887, and the smallest, 30·298 inches, in 1888.

The number in the last column shows the mean of the ten readings.

The highest, 30·552, is in January; and the next in order, 30·465, in December. The lowest is 30·231 in July, and the next in order is 30·233 in August. These months are in agreement with those at Sarona, and thus, though at Blackheath there was no absolute maximum in December, yet its general high pressure has the second place on the mean as at Sarona. The mean of all is 30·368 inches.

If we compare the numbers in Tables I and II together month by month, we shall see that at Blackheath the maximum atmospheric pressure has been greater in every month but two, viz., in November, 1882, and in January, 1887, when the pressure at Sarona rose higher by 0·007 inch and 0·064 inch respectively than at Blackheath. Again, in November, 1888, the difference was only 0·001 inch. In every other month the atmospheric pressure at Sarona was less than at Blackheath, and in some months by as much as six-tenths of an inch, viz., in May, 1881; January and July in 1882; February, March, and May, 1883; and April, 1887. By taking the difference between the number in the last column of the two preceding tables, the mean excess of maximum atmospheric pressure at Blackheath over that at Sarona is:—

In.			In.			In.		
January	....	0·364	May	....	0·377	September	....	0·371
February	....	0·325	June	....	0·375	October	....	0·384
March	....	0·344	July	....	0·408	November	....	0·283
April	....	0·261	August	....	0·428	December	....	0·297

TABLE III. shows the Lowest Reading of the Barometer at *Sarona* in each month.

Month.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	in. 29·873	in. 29·751	in. 29·855	in. 29·527	in. 29·678	in. 29·616	in. 29·682	in. 29·442	in. 29·709	in. 29·748	in. 29·688
February..	29·635	29·524	29·706	29·624	29·700	29·716	29·620	29·724	29·529	29·656	29·643
March ..	29·615	29·579	29·631	29·631	29·597	29·500	29·584	29·743	29·592	29·571	29·604
April ..	29·489	29·545	29·581	29·533	29·505	29·482	29·543	29·522	29·550	29·679	29·543
May ..	29·640	29·637	29·609	29·635	29·670	29·687	29·686	29·704	29·690	29·559	29·652
June ..	29·609	29·697	29·684	29·666	29·703	29·630	29·609	29·654	29·645	29·583	29·648
July ..	29·556	29·563	29·545	29·597	29·600	29·509	29·567	29·573	29·574	29·494	29·558
August ..	29·584	29·570	29·630	29·563	29·582	29·535	29·622	29·567	29·599	29·587	29·584
September	29·720	29·663	29·712	29·607	29·665	29·663	29·674	29·670	29·664	29·622	29·666
October .	29·819	29·823	29·729	29·751	29·783	29·778	29·734	29·860	29·720	29·790	29·779
November	29·780	29·747	29·773	26·687	29·832	29·822	29·814	29·713	29·553	29·800	29·752
December	29·748	29·784	29·722	29·705	29·846	29·780	29·674	29·776	29·547	29·643	29·723
Means ..	29·672	29·657	29·681	29·627	29·680	29·643	29·651	29·662	29·614	29·644	29·662

The numbers in this table show very small differences from each other, and there is not one reading so small as 29·4 inches, differing in this respect very much from our experience in England.

The minimum at Saronia for the year has occurred in—

					The lowest was Ins.	
January, twice, in 1883 and 1887	....	....	29·442	in	1887	
February, twice, in 1881 and 1888	....	....	29·524	,,	1881	
April, 4 times, in 1880, 1884, 1885, and 1886			29·482	,,	1885	
July, twice, in 1882 and 1889	....	....	29·494	,,	1889	

The highest minimum for the year has occurred in—

					The highest was Ins.	
January, twice, in 1880 and 1882	....	....	29·873	in	1880	
October, 4 times, in 1881, 1883, 1887, and 1888	....	....	29·860	,,	1887	
November, 3 times, in 1885, 1886, and 1889			29·822	,,	1885	
December, once....	....	....	29·846	,,	1884	

The numbers at the foot of the columns give the mean for each year the largest was 29·681 in 1882 and the smallest 29·614 in 1888.

The numbers in the last column show the mean of the ten readings. The lowest is in April, 29·543 inches, and the next in order is July, 29·553 inches. The highest, 29·779 inches, is in October, and the next in order, 29·752 inches, is in November. The mean of all is 29·662 inches.

## METEOROLOGICAL OBSERVATIONS.

TABLE IV. shows the Lowest Readings of the Barometer at *Blackheath* in each Month.

Months.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	in. 29·874	in. 28·816	in. 29·196	in. 29·150	in. 28·460	in. 28·838	in. 28·964	in. 28·736	in. 29·165	in. 29·339	in. 29·054
February..	28·913	28·851	28·912	28·890	29·316	28·975	29·183	29·608	29·381	29·101	29·176
March ..	29·226	29·167	28·915	29·176	29·175	29·193	29·236	28·999	28·646	28·908	29·064
April ..	29·231	29·604	28·801	29·347	29·269	29·177	29·145	29·245	29·514	29·133	29·247
May ..	29·603	29·396	29·281	29·458	29·287	29·069	29·027	29·338	29·323	29·456	29·324
June ..	29·566	29·344	29·384	29·691	29·474	29·453	29·661	29·585	29·470	29·579	29·521
July ..	29·418	29·441	29·319	29·479	29·544	29·795	29·431	29·581	29·375	29·473	29·486
August ..	29·191	29·384	29·206	29·531	29·576	29·593	29·457	29·403	29·571	29·168	29·408
September.	29·166	29·383	29·166	28·748	29·355	29·392	29·587	29·206	29·605	29·391	29·300
October ..	28·716	29·008	28·719	29·349	29·316	28·875	28·548	29·228	29·210	29·099	29·007
November	28·651	28·959	29·050	28·900	29·635	29·194	28·900	28·751	29·136	29·447	29·062
December .	29·102	28·864	28·965	29·445	28·804	29·445	28·254	29·214	29·033	29·223	29·035
Means ..	29·221	29·185	29·076	29·264	29·268	29·250	29·118	29·241	29·286	29·276	29·224

Very remarkable indeed are the numbers in this table as compared with those in the corresponding table at Saroua. In every year the atmospheric pressure has been less than 29 inches, and with few exceptions the readings have been lower than those at Saroua, and in some months by an inch or more, viz., October and November, 1880; October, 1882; January and December, 1884; October, 1886; with numerous instances of 0·7 inch, 0·8 inch, and 0·9 inch. There are, however, a few instances in which the minimum at Saroua was lower than at Blackheath, viz., January, 1880; April, 1881; June, 1883; July and August, 1885; June, 1886; and July, 1887; that in July, 1885 by the large amount of 0·286 inch.

The minimum at Blackheath for the year has occurred in—

						The lowest was	
						Inch.	
January, 4 times, in 1881, 1884, 1885, and							
1887	...	...	...	...	...	28·460	in 1884
March, twice, in 1888 and 1889						28·646	„ 1888
September, once						28·748	„ 1883
October, once	...	...	...	...	...	28·719	„ 1882
November, once						28·651	„ 1880
December, once....						28·254	„ 1886

The highest minimum for the year has occurred in—

						The highest was	
						Inch.	
January, once	...	...	...	...	...	29·874	in 1880
February, once	...	...	...	...	...	29·608	„ 1887
April, once	...	...	...	...	...	29·604	„ 1881
June, 4 times, in 1882, 1883, 1886, and 1889						29·691	„ 1883
July, once	...	...	...	...	...	29·795	„ 1885
September, once						29·605	„ 1888
November, once						29·635	„ 1884

The numbers at the foot of the columns give the mean for each year; the largest was 29·286 inches, in 1888, and the smallest 29·076 inches, in 1882.

The numbers in last column show the mean of the ten minimum readings:—The lowest, 29·007 inches, in October, and the next in order, 29·035 inches, in December. The highest, 29·521 inches, in June, and the next in order, 29·486 inches, in July.

By taking the difference between the number in the last column of Tables III. and IV. the average lower barometer readings in England below those in Palestine will be shown, viz. :—

		In.			In.			In.
January	...	0·634	May	...	0·328	September....		0·366
February	...	0·467	June	...	0·127	October	...	0·772
March	...	0·540	July	...	0·072	November....		0·690
April	...	0·296	August	...	0·176	December	...	0·688

The mean of all is 0·438 inch.

TABLE V. shows the Range of Barometer Reading at *Sarona* in each month.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	in. 0·396	in. 0·384	in. 0·365	in. 0·561	in. 0·584	in. 0·535	in. 0·446	in. 0·843	in. 0·457	in. 0·325	in. 0·490
February..	0·520	0·583	0·543	0·475	0·530	0·381	0·445	0·515	0·608	0·434	0·503
March ..	0·551	0·596	0·501	0·429	0·536	0·609	0·531	0·320	0·552	0·468	0·511
April ..	0·562	0·490	0·533	0·509	0·508	0·513	0·491	0·471	0·442	0·372	0·489
May ..	0·307	0·320	0·408	0·318	0·276	0·218	0·321	0·357	0·249	0·359	0·313
June ..	0·314	0·260	0·311	0·139	0·227	0·256	0·236	0·211	0·229	0·359	0·257
July ..	0·235	0·297	0·253	0·174	0·299	0·284	0·228	0·320	0·235	0·329	0·265
August ..	0·243	0·301	0·171	0·240	0·267	0·290	0·132	0·199	0·168	0·201	0·201
September	0·205	0·277	0·237	0·294	0·350	0·710	0·219	0·296	0·279	0·260	0·292
October ..	0·199	0·171	0·254	0·226	0·219	0·192	0·205	0·158	0·328	0·229	0·248
November	0·311	0·309	0·300	0·333	0·231	0·266	0·295	0·386	0·586	0·336	0·335
December	0·432	0·448	0·431	0·401	0·297	0·382	0·490	0·311	0·725	0·542	0·446
Means ..	0·359	0·371	0·359	0·342	0·360	0·386	0·337	0·366	0·405	0·353	0·362

The greatest ranges appear in the winter and spring months, and the smallest in the summer and autumn months.

The greatest monthly range in the year has occurred in—

					The largest was	
					Ins.	
January, 3 times, in 1883, 1884 and 1887	....				0·843	in 1887
February, once	....	....	....	....	0·543	„ 1882
March, twice, in 1881 and 1886	....			....	0·596	„ 1881
April, once	....	....	....	....	0·562	„ 1880
September, once	....	....	....	....	0·710	„ 1885
December, twice, in 1888 and 1889	....			....	0·725	„ 1888

The least monthly range in the year has occurred in—

					The smallest was	
					Ins.	
June, once	....	....	....	....	0·139	in 1883
August, 4 times, in 1882, 1886, 1888, and 1889					0·132	„ 1886
October, 5 times, in 1880, 1881, 1884, 1885, and 1887	....	....	....	....	0·158	„ 1887

These small ranges are remarkable.

The mean monthly range in each year is shown at the foot of each column. The largest is 0·405 inch, in 1888, and the smallest, 0·337 inch in 1886. The mean monthly range is 0·362 inch.

The numbers in the last column show the mean range in each month. The largest, 0·511 inch, is in March, and the next in order, 0·503 inch is in February. The smallest, 0·201 inch, is in August, and the next in order, 0·248 inch, is in October.

## METEOROLOGICAL OBSERVATIONS.

TABLE VI. shows the Range of Barometer Reading at *Blackheath* in each month.

Month.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	in. 0·732	in. 1·699	in. 1·694	in. 1·447	in. 2·108	in. 1·516	in. 1·100	in. 1·886	in. 1·482	in. 1·317	in. 1·498
February..	1·493	1·344	1·859	1·875	1·095	1·157	1·476	1·056	0·899	1·241	1·349
March ..	1·202	1·302	1·662	1·484	1·029	1·368	1·113	1·565	1·620	1·609	1·395
April ..	1·145	0·589	1·492	1·245	0·762	1·074	1·064	1·394	0·661	1·035	1·146
May ..	0·805	1·196	1·133	0·873	1·088	1·022	1·406	1·002	1·099	0·554	1·018
June ..	0·601	0·911	0·882	0·641	0·794	0·893	0·562	0·803	0·705	0·779	0·757
July ..	0·696	0·830	1·090	0·626	0·611	0·586	0·844	0·690	0·654	0·828	0·746
August ..	0·996	0·881	1·009	0·709	0·670	0·690	0·718	0·886	0·636	1·042	0·824
September	1·270	0·981	1·139	1·460	0·952	0·903	0·774	1·215	0·797	0·996	1·049
October ..	1·637	1·406	1·745	1·121	1·268	1·269	1·759	1·318	1·196	1·017	1·374
November	1·745	1·420	1·016	1·457	0·855	1·167	1·758	1·508	1·064	1·162	1·409
December	1·497	1·693	1·391	1·075	1·366	1·066	2·271	1·228	1·392	1·321	1·330
Means ..	1·152	1·188	1·351	1·168	1·050	1·059	1·237	1·213	1·112	1·075	1·158

These ranges differ very greatly from those in the preceding table, as at Saron a the greatest appear in the months of Winter and Spring, and frequently exceeding an inch, and in two instances, viz., in January, 1885, and December, 1886, exceeding 2 inches. The smallest appear in June, July, and August.

The largest monthly range in the year has occurred in—

	The largest was				
	Ins.				
January, 4 times, in 1881, 1884, 1885, and 1887	....	....	....	....	2.108 ins. in 1884
February, twice, in 1882 and 1883	....	..			1.875 in. „ 1883
March, twice, in 1888 and 1889	....	....			1.620 „ „ 1888
November, once	....	....	....	....	1.745 „ „ 1880
December, once....	....	....	....	....	2.271 ins. „ 1886

Agreeing generally in the months with those at Saron a.

The smallest monthly range at Blackheath in the year has occurred in—

	The smallest was				
	Ins.				
April, once	....	....	....	....	0.589 in 1881
May, once	....	...	....	....	0.554 „ 1889
June, 3 times, in 1880, 1882 and 1886	....				0.562 „ 1886
July, 4 times, in 1883, 1884, 1885, and 1887....					0.586 „ 1885
August, once	....	....	....	....	0.636 „ 1888

Differing generally in the months with those at Saron a.

The mean monthly range in each year is shown at the foot of each column. The largest, 1.351 inch, in 1882, and the smallest, 1.075 inch, in 1889. The mean monthly range is 1.158 inch.

The numbers in the last column show the mean range in each month. The largest, 1.498 inch, in January, the next in order, 1.409 inch, is in November. The smallest, 0.746 inch, in July, and the next in order, 0.757 inch, in June.

By comparing the numbers in the Tables V. and VI. it will be seen that the range in every month was larger at Blackheath than at Saron a; the least difference was about a quarter of an inch in the months of June, 1880 and April, 1884; there are many instances exceeding 1 inch, and three exceeding 1½ inches in the months of January, 1884, and October and December, 1886.

By taking the difference between the numbers in the last column of Tables V. and VI., the greater range of atmospheric pressure in England over that in Palestine is shown in every month, and are—

	In.		In.		In.
January ....	1·008	May ....	0·705	September....	0·757
February ....	0·846	June ....	0·500	October ....	1·126
March ....	0·884	July ....	0·480	November....	1·074
April ....	0·657	August ....	0·623	December ....	0·884

By dividing the mean range in each month at Blackheath by the mean range at Sarona, it will be found that the range at Blackheath in—

April ....	is about $2\frac{1}{4}$ times larger than at Sarona.
February, March and July	„ $2\frac{3}{4}$ „ „
January, June and December	„ 3 „ „
May ....	„ $3\frac{1}{4}$ „ „
September ....	„ $3\frac{1}{2}$ „ „
November ....	„ $4\frac{1}{4}$ „ „
October ....	„ $5\frac{1}{2}$ „ „

The mean annual range was at—

	In.
Blackheath ....	1·985
Sarona ....	0·711

The highest reading during the 10 years, at—

	Was Ins.	January
Blackheath ....	30·890	in 1882
Sarona ....	30·285	„ 1887

The lowest reading during the 10 years, at—

	Was Ins.	January
Blackheath ....	28·254	in 1886
Sarona ....	29·442	„ 1887

The extreme range was at—

Blackheath ....	2·436 ins.
Sarona ....	0·843 in.

so that the range at Sarona was about  $\frac{1}{3}$  of that in England.

TABLE VII. shows the Mean Monthly Reading of the Barometer at *Savona* in each month.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	in. 30·046	in. 29·997	in. 30·060	in. 29·898	in. 30·010	in. 29·919	in. 29·946	in. 29·866	in. 29·958	in. 29·921	in. 29·962
February ..	29·942	29·838	30·000	29·924	29·945	29·929	29·874	29·958	29·870	29·939	29·922
March ..	29·882	29·917	29·930	29·838	29·892	29·861	29·879	29·900	29·878	29·872	29·885
April ..	29·814	29·828	29·797	29·775	29·723	29·706	29·858	29·781	29·795	29·859	29·794
May ..	29·776	29·821	29·810	29·801	29·841	29·813	29·845	29·814	29·817	29·752	29·815
June ..	29·741	29·816	29·806	29·735	29·828	29·776	29·746	29·744	29·768	29·770	29·773
July	29·679	29·705	29·689	29·689	29·717	29·679	29·677	29·671	29·672	29·648	29·683
August ..	29·716	29·675	29·705	29·697	29·707	29·657	29·685	29·653	29·696	29·665	29·686
September	29·808	29·792	29·803	29·748	29·817	29·798	29·790	29·802	29·802	29·770	29·793
October ..	29·916	29·902	29·771	29·886	29·900	29·904	29·840	29·875	29·855	29·893	29·874
November .	30·019	29·919	29·919	29·895	29·952	29·921	29·948	29·930	29·922	29·967	29·939
December .	29·944	29·975	29·953	29·924	29·980	29·950	29·979	29·949	29·977	29·953	29·958
Means ..	29·857	29·857	29·856	29·818	29·859	29·826	29·839	29·822	29·831	29·834	29·849

The mean monthly readings are highest in the winter months, but very seldom so high as 30 inches ; the lowest are in the summer months, but none so low as 29·6 inches, so that the mean monthly atmospheric pressure is very uniform.

The highest monthly mean reading of the barometer at Sarona, in the year, has occurred in—

						The highest was	
						Ins.	
January, 4 times, in 1880, 1881, 1882, and 1884	....	....	....	....	....	30·060	in 1882
February, twice in 1883 and 1887	....	....	....	....	....	29·958	,, 1887
November, once	....	....	....	....	....	29·967	,, 1889
December, 3 times, in 1885, 1886, and 1888						29·979	,, 1886

so that the months of highest mean pressure are January, February, November, and December.

The lowest monthly mean reading of the barometer at Sarona in the year has occurred in—

						The lowest was	
						Ins.	
July, 6 times, in 1880, 1882, 1883, 1886, 1888, and 1889	....	....	....	....	....	29·648	in 1889
August, 4 times, in 1881, 1884, 1885, and 1887						29·653	,, 1887

so that the months of lowest mean atmospheric pressure are July and August.

The numbers at the foot of each column show the mean yearly pressure ; the highest, 29·859, was in 1884, and the lowest, 29·818, was in 1883.

The numbers in the last column show the mean of the ten monthly mean readings. The highest, 29·962 inches, is in January, and the next in order, 29·958 inches, is in December. The lowest, 29·683 inches, is in July, and the next in order, 29·686, is in August. The general mean pressure is 29·849 inches.

TABLE VIII. shows the Mean Monthly Reading of the Barometer at *Blackheath* in each month.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January ..	30.309	29.814	30.288	29.842	30.025	29.829	29.584	29.953	30.158	30.101	29.990
February..	29.737	29.753	30.054	30.019	29.855	29.617	30.054	30.248	29.888	29.824	29.918
March ..	30.034	29.819	29.847	29.856	29.871	30.006	29.918	29.988	29.530	29.891	29.886
April ..	29.811	29.867	29.713	29.934	29.755	29.721	29.844	29.928	29.811	29.661	29.805
May ..	30.013	30.167	29.988	29.897	29.932	29.731	29.856	29.941	29.979	29.758	29.913
June ..	29.840	29.910	29.852	29.906	29.970	29.955	29.905	30.127	29.861	29.919	29.928
July ..	29.830	29.929	29.814	29.801	29.894	30.104	29.850	29.979	29.711	29.860	29.877
August ..	29.906	29.792	29.852	29.918	29.934	29.907	29.934	29.915	29.941	29.712	29.894
September	29.905	29.908	29.795	29.769	29.955	29.826	29.981	29.868	30.074	29.974	29.906
October ..	29.804	29.936	29.779	29.912	30.005	29.692	29.729	30.017	29.985	29.627	29.842
November	29.891	29.895	29.538	29.719	30.087	29.835	29.855	29.631	29.730	30.135	29.845
December	29.854	29.932	29.621	30.086	29.808	30.144	29.635	29.783	29.906	30.169	29.888
Means ..	29.911	29.816	29.850	29.893	29.924	29.861	29.847	29.948	29.882	29.892	29.891

The mean monthly readings are highest in the winter months, as at Sarona, the readings often exceeding 30 inches, excepting in the months of April and August, in which months, in none of the years, the reading reached 30 inches. The lowest reading was in January, 1886.

The highest monthly reading of the barometer at Blackheath, in the year, has occurred in—

					The highest was	
					Ins.	
January, 3 times, in 1880, 1882 and 1888	....				30·309	in 1880
February, twice, 1886 and 1887	....				30·248	„ 1887
May, once	....	....	....	....	30·037	„ 1881
November, twice, in 1884 and 1889	....				30·135	„ 1889
December, twice, in 1883 and 1885	....			..	30·144	„ 1885

The months agreeing, with the exception of the one instance in May, with those at Sarona.

The lowest monthly mean reading of the barometer at Blackheath, in the year, has occurred in—

					The lowest was	
					Ins.	
January, once	....	....	....	....	29·584	in 1886
February, twice, in 1880 and 1881	..			....	29·737	„ 1880
March, once	....	....	....	....	29·530	„ 1888
April, once	....	....	....	....	29·755	„ 1884
October, twice, in 1885 and 1889	....			....	29·627	„ 1889
November, twice, in 1883 and 1887	....			....	29·631	„ 1887
December, once	....	....	....	....	29·621	„ 1882

These months differ entirely from those at Sarona. The numbers at the foot of each column show the mean yearly pressure, the greatest as 29·948 in 1887, and the least 29·816 in 1881.

The numbers in the last column show the mean of the ten monthly mean readings. The highest, 29·990 inches, is in January, and the next in order is 29·928 inches, in June. The lowest, 29·805 inches, is in April, and the next in order, 29·842 inches, in October.

The average pressure of the ten years is 29·891 inches, whilst that at Sarona is 29·849 inches, so that the air over the two places is nearly the same in volume.

By comparing the results in Tables VII. and VIII. together we find that with the exception of three months, June, July and August, the mean pressure of the atmosphere at Blackheath has been in some years above, and in others below, that at Sarona; for instance the mean pressure at Blackheath was greater than at Sarona in—

	In.			In.
January, 1880 ....	by 0·263	and smaller in	1886	by 0·362
February, 1887 ...	„ 0·290	„	1885	„ 0·282
March, 1880 ....	„ 0·152	„	1888	„ 0·348
April, 1883 ....	„ 0·159	„	1889	„ 0·198
October, 1889	„ 0·266	„	1885	„ 0·272
November, 1889....	„ 0·168	„	1882	„ 0·381
December, 1885 ....	„ 0·194	„	1886	„ 0·344

In the months of May and September there was only one instance in each of these months, in the 10 years, of the pressure being less at Blackheath than at Sarona. It was greater than at Sarona in—

	In.			In.
May, 1880 ....	by 0·237	and smaller in	1885	„ 0·082
September, 1888....	„ 0·272	„	1882	„ 0·007

and in the remaining months the pressure at Blackheath was always greater. The excess varied in—

	In.			In.
June ....	.... from 0·046	in 1882	to 0·383	in 1887
July ....	.... „ 0·039	„ 1888	„ 0·425	„ 1885
August ....	.... „ 0·047	„ 1889	„ 0·262	„ 1887

By taking the differences between the numbers in the last column of Tables VII and VIII, we find that the mean reading of the barometer at Blackheath was higher than at Sarona, in—

	In.		In.		In.
January	by 0·028	May	by 0·098	August	by 0·208
March	„ 0·001	June	„ 0·155	September	„ 0·113
April	„ 0·011	July	„ 0·194		

and lower in the months of—

	In.		In.		In.
February	by 0·004	October	by 0·032	November	by 0·094
		December	„ 0·070		

## CHRONOLOGY OF POTTERY.

By W. M. FLINDERS PETRIE.

I AM sorry to see an assertion in the last *Quarterly Statement* (p. 329) that "deductions from pottery" "are apt to mislead." This is a serious thing to say, as a knowledge of pottery is really the essential key to all archaeological research.

I have never found it mislead; and I think no person has tested and tried it more completely. Whenever digging is going on I look at every scrap of pottery that is found, for each man has orders to heap up for my inspection every sherd he finds in his work. Then I recognise the style of each piece, and consider if it accords or disagrees with the conclusions that I have already formed as to the age of the deposits.

Last spring I estimated that the marks of potters and owners, found on potsherds, occurred on one piece in 5,000 to 10,000, both in Egypt and Syria; this estimate was made by the number of baskets of potsherds searched, or the number of sherds looked at on the ground in a minute, before a marked piece is found. Thus the number of marks found serves as a rough tally of the whole number of pieces seen. At Lachish I must have looked over about 50,000 or more pieces. In Egypt in the last two years about 3,000,000 pieces have been clearly looked at by me.

If after such searching during the last nine years I have never yet seen any distinctive pottery of any age which I could mistake for that of any other known period, though I was always searching and looking for exceptions—or anything which disagreed with the conclusions which I was forming—I think it is justifiable to say that deductions from pottery are not misleading.

Of course, the subject needs to be learned before it can be used, like any other study. But no excavations can yield their proper fruits without using this main key to understanding them.

I may say that eight periods can already be distinguished as entirely different in their pottery in Palestine; and more detailed research, with the aid of dated monuments, would greatly subdivide this chronological scale.

25th October, 1890.

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## NOTES BY MAJOR CONDER.

## I.

## CHRONOLOGY OF POTTERY.

THAT the chronology of pottery is more likely to give good results in the hands of Mr. Petrie than of most antiquarians, I feel convinced, on account of his experience. The distinctions between early pottery, and that of Byzantine or Roman times, is also well marked; but, as Mr. Petrie has himself noted, the old black pottery is still made in Palestine.

The question is, whether the results as to date agree with those which may be deduced, with greater certainty, from other data. No scholar acquainted with the history of letters can doubt that the Lachish text, found by Mr. Petrie, dates about 7-800 B.C., and I think the date of the capital is also fairly certain. Yet Mr. Petrie has suggested much earlier dates for Lachish ruins, being guided I understand by the pottery. I do not know that any data exist whereby to judge of the age of "Amorite" pottery, or how it is known to be "Amorite," especially as the Amorites lived in the Hebron mountains, and not in the Philistine plains.

I had seven years' experience of pottery of every age in Palestine, and always examined that found at the ruins. But I consider that the character of lettering on texts, the character of the tombs found at a ruin, and of the masonry and architecture, form together much safer data for determining date than can be ever expected to result from study of the uninscribed pottery.

## II.

## THE HEBREW WEIGHTS.

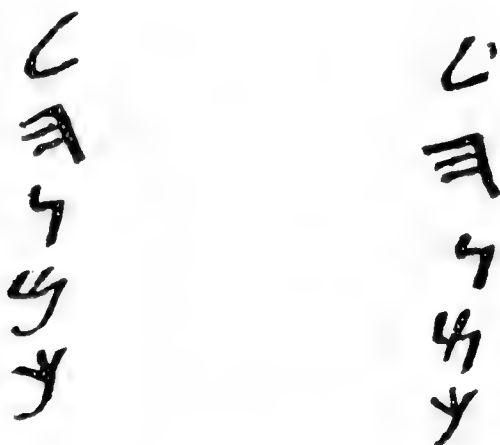
THE weights published in the last *Quarterly Statement* weigh 80 grains and represent the quarter of a weight of 320 grains—that is to say, a quarter of a shekel. As my father, the late F. R. Conder, M. Inst. C.E., pointed out more than ten years ago, the old Hebrew shekel had this weight (*see* "Conder's Handbook to the Bible," p. 63). Maimonides ("Constit de Siclis," 1-2) says that, under the Hebrew Kings, the shekel weighed 320 grains of barley, and this would weigh close upon 320 grains Troy. Moreover (p. 64), this determination my father checked by the Assyrian weights from Nineveh, and got the same result. In a later time (*see* p. 63) the values were changed, but the old Hebrew shekel was worth 3s. 4d. of our money.

This being, therefore, so fully confirmed by the recent discovery, the reading of שֶׁל should be regarded as a contraction from שֶׁקֶל, *shekel*, and it has nothing to do with Israel. The word נֶצֶן probably comes from יָצַב, "to establish," as Dr. Neubauer has suggested, and would mean "standard." There is no known notice of a weight so called, as far as my reading goes, nor is it necessary to drag in the "Hittites," concerning whose weights we know nothing. It appears that in the Greek town of Naucratis the same standard of weight was used, that was common to Assyrians, Phœnicians, and Hebrews.

### III.

#### THE LACHISH INSCRIPTION.<sup>1</sup>

THIS may, I think, very clearly be read לְהַנִּיחַ, and the forms of the letters resemble those in use about 700 B.C., as shown opposite, the second column being from certain gems of that date.



The translation is in this case very clear. In Aramaic we find the root הִנָּא, "profit," "health," "wholesomeness," and in Arabic, حِنَا has the same meaning. When a guest drinks water at dinner, his host says *Henean*, as I well remember, and as Lane remarks ("Modern Egyptians," 1, p. 183), the meaning of which is, "may it profit you," or "may you digest." Here we find, on the old water pot made about 700 B.C., the same wish expressed, "to your digestion," or "health," but it is remarkable that I cannot find the root in Hebrew, but in Buxtooff's Chaldee Dictionary. This indicates an Aramaic rather than a Hebrew population in Lachish, and we must remember that in 700 B.C. the first transportation of Aramaic tribes into Palestine took place, with the fall of Samaria.

<sup>1</sup> *Quarterly Statement* p. 230, 1890.

## IV.

## THE LACHISH PILLAR.

AFTER inspecting the cast of this pillar it becomes more possible to obtain some idea of its date. The dressing is compared by Mr. Petrie to that of the masonry of Herod's Temple. Professor Hayter Lewis has noticed the same dressing on Carthaginian monuments, which are equally of late date, and it has recently been pointed out that the Greek sculptors used the same sort of tool, in finishing the less polished parts of their statues. As far, therefore, as the dressing is an indication, the pillar should belong to the Greek period in Palestine.

Mr. Petrie also compares this pillar to that found by Sir C. Warren west of Herod's Temple enclosure. The site where it was found is that where the Jews of the second century B.C. erected the Xystus, in imitation of Greek custom. The general style of the Palace of Hyrcanus, built in the same century east of Jordan, agrees also with this attribution.

Capitals have also been found in Cyprus, at Athieno, which present a close resemblance, in general idea, to that discovered by Mr. Petrie; and this Cypriote style is accompanied, in at least one instance, by a text in Greek language and character.

These various considerations lead me to suppose that the Lachish capital is not older than 300 B.C., and belongs to the time when a rude art grew up in Syria and in Cyprus, based on Greek influence—an influence which was so strong as to lead to the revolt of Judas Maccabæus in whose time Greek manners, architecture, and even Greek rites, were adopted by the Jews. The text on the pot and the capital together, seem to indicate that at Lachish we have to deal with ruins extending from 700 to 200 B.C., and perhaps later. When the site is more fully explored we may discover yet older remains; but alphabetic texts older than about 1,000 B.C. are hardly to be expected.

## V.

## QUOTATIONS OF PSALMS.

IN reply to the question asked in the last *Quarterly Statement*, it may be noted that quotations from Psalms were very commonly placed on the walls of houses in Palestine in the fifth and sixth centuries B.C. Many are known in the Hauran and in Northern Syria. I discovered one in Southern Palestine. They are many centuries older than the earliest known MS. of the LXX. (see "Scottish Review," July, 1890).

## VI.

## THE KHABIRI OR ABIRI.

PROFESSOR SAYCE informs me that German scholars were inclined at first to suppose that the Khabiri or Abiri were Hebrews, but abandoned the idea because the sign in Assyrian does not represent 'a, but only the letters which in Arabic are  $\tau$  and  $\xi$ .

This objection does not, however, seem to be a strong one. As mentioned before, the name of Gaza  $\text{גזא}$  is spelt *Khazati* in the same letter. The distinction of  $\xi$  and  $\dot{\xi}$  is not found in the early Semetic alphabets, both letters being represented by the same sign  $\text{ג}$ , although the same alphabets carefully distinguish  $\text{ז}$  from  $\text{ד}$  and  $\text{ש}$ , as also  $\text{ק}$  from  $\text{כ}$ , and  $\text{ו}$  from  $\text{נ}$ . We do not, perhaps, know the exact sound of the Hebrew name, which the Greeks rendered by *Ἐβραῖος*; but we know it was written with the letter  $\text{ז}$ , whatever may have been the exact sound given to that letter, and that it was therefore written with the same letter used in the name of Gaza.

In this connection it is to be observed that the Fellahin still confuse, in their dialect, the gutturals  $\tau$   $\xi$  and  $\dot{\xi}$ ; and it is very remarkable that the Phœnicians should not distinguish the  $\xi$  and  $\dot{\xi}$ , even as late as 200 B.C.

It appears, therefore, that the objection is hypercritical, especially in dealing with a period as early as 1450 B.C. It has been suggested that the *Khabiri* were "Hittite" allied tribes, but this would conflict both with Biblical and also with monumental history. There were Hittites in Hebron in Abraham's time, according to Genesis; but their power was much shaken by Thothmes III in 1600 B.C., and in 1350 B.C. we only read of them in the north of Syria, where also they appear in the Tell Amarna texts. The conditions which prevailed in Palestine in 2000 B.C., did not, apparently, prevail 500 years later, after the first Egyptian conquest.

## VII.

## THE SCULPTURED TOMB AT SHEFA 'AMR.

THIS tomb I measured in 1875. A view of the façade is given in "Tent Work" (Frontispiece, Vol. II), and an account in the "Memoirs" (I p. 340), where, however, I have only ventured to give those letters of the inscription which appear clearest. Herr Schumacher gives an imperfect sketch of the same (*Quarterly Statement*, October, 1889, p. 189), but does not mention the inscription. In the "Memoirs" it is described as a Christian tomb.

I think there is little doubt that Mr. J. P. Van Kasteren ("Geboorte-plaatz der Boanerges," Amsterdam, 1890), has correctly restored the text which agrees with my MS. copy, and is as follows:—

ΚΕΧΡΕΒ  
ΟΗΘΙCΑΛ

LEFT OF DOOR.

... ΕΛΕ  
ΗCΟΝ ΜΕ  
(ΚΑΙ) ΤΕΚΝ(ΟΝ)

RIGHT OF DOOR.

Κ(υρ)ι Χρ(ιστ)ι βοηθ(ε) Σαλ . . . Ελεησον με (και) τεκνον.

"Lord Christ, help Sal. . . . Have mercy on me and on my offspring."

This agrees with the ascription of the tomb to Christian times, being the family tomb of a certain Sal. . . . (Saleh or Salmon), whose name is evidently that of a native of Palestine.

## VIII.

### NOTES ON THE "QUARTERLY STATEMENT."

P. 220. *'Amarin*.—Mr. Flinders Petrie connects this name (as did Professor Palmer) with the Amorites. But it is written with the Guttural  $\xi$  while the Hebrew word is written with  $\aleph$ . It only means, apparently, "Omar's tribe."

P. 221. *Modern Pottery*.—The fact (mentioned in the "Memoirs") of the black pottery being still made at Gaza shows—as do many others—how difficult it is to date pottery, as the old methods continue to survive even now.

P. 232. *Horns of the Altar*.—The account given by Maimonides should not be ignored. It does not agree with the new theory.

P. 242.—There seems no reason for regarding the Beit el Khulil masonry as Pre-Herodian. I have inspected the dressing several times, and it is much the same used by the Romans, 2nd to 6th century, A.D. The place, as described in the "Memoirs," was a market-place in the Christian age. The seats are still visible, and the remains of a chapel. This agrees with the date of the inscription, which I sought in vain, and which Mr. Flinders Petrie has at length found and attributed to 3rd century, A.D.

P. 245.—The tinkers whom he saw near Jaffa were no doubt gypsies. The Palestine gypsies are mentioned in "Tent Work in Palestine."

P. 332.—The reason why the Malula words resemble Hindi is clear. Hindi is a very mixed language, and contains a number of Arabic and Aramaic words which came into it through the Persian. Persian itself

is full of such words, as is also modern Turkish. But every word compared is a true Semitic word, and it would be vain to attempt to build a theory on this basis as to Hindi, which is a degraded mixture of several languages on an Aryan basis. The sounds of the Malula vowels are probably indefinite, like those of Fellah dialects, and to apply to them the rules of book Arabic would be hypercritical.

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## NOTES BY DR. SELAH MERRILL.

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### PITS IN THE SHITTIM PLAIN.

As public attention has recently been called anew to these singular remains, I will quote my original description of them from the "Fourth Statement of the Palestine Exploration Society," 1877, pp. 97-99 (*see also* "East of the Jordan," pp. 225-227).

"About one hour north of Wady Nimrin, there is a series of pits running in a straight line across the plain from east to west. This series meets another running from north-east to south-west, the line of which is not exactly straight. The pit where these two lines intersect is larger than any of the others. At the extreme eastern end of the longest line, and just behind the end pit, there is a single pit which is very curious on account of its position. Each pit is 30 feet in diameter and perfectly round; while at present the depth of the pits varies from 3 to 6 feet. The distance from one pit to another is in general about equal to the diameter, although in exceptional cases it is increased to 50 or 60 feet. There are 31 pits in the longest line, and 20 in the other. The line probably extended somewhat further towards the Jordan, but the pits in that direction have been obliterated in some way. . . . Further south, and near what is now the bank of Wady Nimrin, there are the remains of another series of pits of which I counted about a dozen."

In the *Quarterly Statement* for April, 1890, p. 130, Mr. Neil describes these pits "as three rows of basin-like circular mounds, about 5 or 6 feet high and some 30 feet in diameter. . . . In the longest row there are no less than 31 of these hollow basins. They are generally 30 feet apart, but in some instances 50 to 60 feet."

I have read Mr. Neil's "Palestine Re-peopled" and "Palestine Explored," the only works of his accessible to me, and I find no mention

of these pits. He states that he "was on a journey to the highlands of Moab in 1873," and to have visited these pits must have gone far out of his way. It is remarkable that he should have carried in his memory for seventeen years details of these pits, which tally almost word for word with my own measurements.

Mr. Neil says, that within the edge or rim "the actual pits themselves once yawned deep and wide." Can this be true? If the basins are 4 feet in depth (for an average) and the edge is still perfect, where did the material come from that has filled them, for a considerable amount of earth would be required? Dust, rain, and the winter grass are the only means by which the pits could have been filled. Had the edges of the pits been washed for the required filling material, they would not be perfect in shape as they now are. Again, had there been piles of earth about the pits and this earth been washed in, the rims would not be in perfect shape. No, friend Niel, these pits never "yawned deep and wide." I doubt if they were ever much deeper than they are at present.

Were they used for irrigation, or were they connected in anyway with a water supply? This I doubt. They are 30 feet apart; while those on the Damascus Plain are said to be (p. 131) "50 or 60 yards apart." Moreover, they are close to Wady Nimrin, a large living stream. Canals to-day carry water south of the stream, and were water ever wanted north of it why would it not be carried thither in the same way? The cost of leading water by means of canals from this stream to the region where the pits are found, would be trifling compared with that of digging a large number of pits that "yawned deep and wide," to say nothing of the underground connecting tunnels.

At the time of my examination, my impression was that these pits were used for military purposes, and since then I have learned that similar pits are sometimes used in such a way.

#### CASTLE AND ROCK-CUT CHANNEL AT KHAN MINIEH.

On p. 178, *Quarterly Statement*, July, 1890, Mr. Brass speaks of "exploring" near the Sea of Galilee, and the inference is that what he mentions immediately, *i.e.*, "the remains of a fortification," is a *new discovery*. But these remains have been familiar to Palestinian scholars for many years past, for upwards of thirty years at least.

#### VISITS TO M'SHITA.

The reference by Mr. Hill, on p. 174, is probably to the exploration of the Dead Sea by Lieutenant Lynch. As a matter of history, I will state that we visited M'Shita twice (1875, 1876), and both times under the

escort of the Adwan. On the first of these visits we took several fine photographs, and on the second I brought away specimens of bricks, of which I noticed three different sizes.

#### WAS CHOSROES II EVER IN PALESTINE?

Many English writers refer to Chosroes (meaning Chosroes II) in such a way as to lead one to think that he was in Palestine. Such references are not of infrequent occurrence, and there are two in the July *Quarterly Statement*, pp. 173, 179. I shall be grateful to anyone who will indicate the work which contains the evidence that Chosroes II was ever in the Holy Land. My impression has been that he was never in that country, and that the Persian army was there but a very few years. To me it is very doubtful if Chosroes II, Shahr Barz, his greatest General, or any other Persian of that period had anything to do with the building of the M'Shita Palace.

#### NATURAL BRIDGE, HOT SPRING, AND ROMAN ROAD AT PELLA.

On p. 182, Conder states that "the Hot Bath of Pella" mentioned in the Jerusalem Talmud, "is evidently the springs at Tell Hamma." It is not clear what place he means by "Tell Hamma." Tell el Hamman is on the Shittim Plain. El Hamma is the name of the hot springs at Gadara on the Menadireh (Yarmuk). Thirty-five minutes from Tubakhat Fah'l (Pella) I discovered a fine natural bridge, and beside it a hot spring. This is on Wady Hammet Abu Dhableh, and is the spring to which I suppose reference to be made in the Jerusalem Talmud. In "East of the Jordan" (Bentleys, London), p. 183, *et seq.*, will be found a sketch of both the bridge and hot spring.

The Roman road leading from Pella to Gerasa past Jabesh Gilead, I traced and made a sketch of the ground.

#### INHABITANTS OF BASHAN.

On p. 188, Conder says that the inscriptions from the Hauran, "show that as late as the time of Agrippa I the inhabitants of Bashan were living in underground caves, and had not begun to build houses." This statement, nearly identical with that of Waddington, Inscriptions No. 2,329, appears to me to rest on a very slight basis. Of this Inscription (No. 2,322), De Vogüé has given a translation found in his Essay on the Hauran in the "Recovery of Jerusalem," p. 324. I will reproduce this translation, placing in brackets the parts which he has supplied:—

"[King Ag]rippa, friend of Caesar, [and friend of the Ro]mans, says . . . of a life like that of wild beasts. . . I am ignorant how, up to the present time, [in many] parts of the [coun]try dwelling in caves . . . nor altogether."

In my judgment there is nothing here on which to base any statement respecting the inhabitants of that country, and I would not be so rash as to attempt to read history into these fragments of sentences. To me it is much more likely that the inscription refers to robbers. It is well known that Bashan has had its full share of periods of prosperity. Fourteen and a half centuries B.C. a single section of this country had "threescore cities, all of which were fenced with high walls, gates, and bars; besides unwalled towns a great many" (Deut. iii, 4, 5). Eight and a half centuries B.C., Shalmanezar II invaded Bashan and "pulled down their houses without number." Would a great Assyrian King with a powerful army have gone into this region to hunt out people who lived in caves? We have also the Nabathean and the Roman periods. My view has been that the Bashan country has from the remotest times been occupied by strong and wealthy people, that the building material was always of stone, and that in the case of Shalmanezar II *pulling down houses* implied *stone houses*. The statement quoted from Conder I regard as without historical foundation, and furthermore, as actually contrary to history.

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## PHœNICIANS IN DEVONSHIRE.

By H. B. S. W.

THE occurrence in various parts of Palestine of clusters of Dolmens, or Cromlechs, and the survival of a few examples of these erections in Devon and Cornwall, leads to the enquiry as to the identity of the race by which these stones were erected in such far distant places.

There has recently, however, been published in the "Western Morning News" an article entitled "Phœnicians in Dart Vale," a copy of which I append, which, as it appeals to the experience of the Palestine Exploration Committee, should, I think, be laid before readers of the *Quarterly Statement*.

I should certainly like to know whether such scholars as Professor Sayce, Dr. Ginsburg, Herr Khitrovo, Major Conder, &c., have really accepted the statements respecting the Ballhatchet of Ipplepen?

That the name is not confined to that locality I am quite certain; there is now, and has been for many years past, a family of that name resident in Plymouth.

What connection there may have been with those residing in the neighbourhood of the Dart in former times of course I do not know, but I never heard of the Plymouth family being noticeable for any peculiarity of their physiognomy:—

## "PHœNICIANS IN DART VALE.

"(SPECIAL).

"Much interest, not only local but world-wide, was aroused a few months back by the announcement of a Phœnician survival at Ipplepen, in the person of Mr. Thomas Ballhatchet, descendant of the priest of the Sun Temple there, and until lately owner of the plot of land called Baal ford, under Baal Tor, a priestly patrimony, which had come down to him through some 18 or 20 centuries, together with his name, and *his marked Levantine features and characteristics.*

"Such survivals are not infrequent among Orientals, as, for instance, the Cohens, Aaron's family, the Bengal Brahmins, the Rechabites, &c. Ballhatchet's sole peculiarity is his holding on to the land, in which, however, he is kept in countenance in England by the Purkises, who drew the body of Rufus to its grave in Winchester Cathedral on 2nd August, 1,100 and the Chertsey Wapshots, who had held their land, father to son, from the days of King Alfred, both families existing until within 40 years. *Widely spread as was the announcement, no Semitic scholar, of whatever rank, either challenged or contradicted it.* Many, indeed, accepted it frankly, while others considered it as 'fairly tenable.'

"Further quiet research makes it clear beyond all manner of doubt that the Phœnician tin colony, domiciled at Totnes, and whose sun temple was located on their eastern sky-line at Ipplepen, have left extensive traces of their presence all the way down the Dart in the identical and unaltered names of places, a test of which the *Palestine Exploration Committee* record the priceless value. To give but one instance:—The beautiful light-refracting diadem which makes Belliver the most striking of all her sister tors, received from the Semite its consecration as 'Baal-livyah,' Baal, crown of beauty or glory. The word itself occurs in Proverbs 1-9 and 4-9, and as both Septuagint and Vulgate so render it, it must have borne that meaning in the third century B.C. and in the third century A.D., and, of course, in the interval. There are many other instances quite as close, and any student of the new and fascinating science of Assyriology will continually add to them. A portrait of Ballhatchet, with some notes by an eminent and well-known Semitic scholar, may probably appear in the 'Graphic'; in the meantime it may be pointed out that his name is typically Babylonian. Not only is there at Pantellaria the gravestone of one Baal-yachi (Baal's beloved), but no less than three clay tablets from the Sun Temple of Sippara (the Bible Sepharvaim) bear the names of Baal-achi-iddin, Baal-achi-utsur, and Baal-achi-irriba. This last, which bears date 22 Sivan (in the 11th year of Nabonidus, B.C. 540), just two years before the catastrophe which followed on Belshazzar's feast, is in the possession of Mr. W. G. Thorpe, F.S.A. It is in beautiful condition, and records a loan by one Dinkiya to Baal-achi-irriba (Baal will protect his brother), on the security of some slaves."

## ACOUSTICS AT MOUNTS EBAL AND GERIZIM.

*From* WM. C. WINNSLOW, D.D., LL.D., D.C.L., Vice-President for the United States of the Egypt Exploration Fund.

THE recent cablegram to a Boston (U.S.A.), daily journal of "A Singular Experiment" that a party at Mounts Gerizim and Ebal in Palestine had successfully tested the ability to hear the blessings and curses proclaimed at that spot or site (*see* Deut. xxvii, and Josh. viii), is interesting as another bit of essential confirmation of the narratives of the Pentateuch and other biblical history; but the experiment is not a "singular" one, having been previously made, I am certain, and at all events by myself, in 1880, while engaged in scientific and archaeological work in the Holy Land. On a perfectly clear and windless day in spring (like our late May) I stationed two persons on Mount Ebal, myself and an attendant on Mount Gerizim, and several persons in the valley between the mountains. We who read were some 700 feet above our little audience. We had arranged visual signals to indicate when one party was to begin and end in reading, lest the other party should not know when to "take up the tale," or even the audience when to say the amens. But no signal was needed. Not only did the audience hear our words distinctly and we their amens, but each speaker heard the words of the other speaker shot across a distance of nearly half a mile. We pronounced the blessings and the curses with Websterian deliberation, on, however, a high key, and not with a Phillips Brooks-like rapidity of utterance.

In all probability Joshua delivered the sentences midway between the two mountains, and the Levites re-echoed them for some distance up and down the valley, so that from the mountain sides on either hand the million or two of hearers intelligently replied with their amens. Jotham, we remember, used Gerizim as a pulpit from which to speak his parable to the Shechemites. With the hills for a sounding-board the spot is wonderfully acoustic. The sense of hearing in Joshua's day was particularly acute, as the Israelites were accustomed to listen to out-door services and sermons. Nor does the record state literally that every man, woman, and child heard the words, but that Joshua read the words before them.

Boston, November 2, 1890.

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## GIHON.

By REV. W. F. BIRCH.

DR. CHAPLIN'S two papers in *Quarterly Statement*, 1890 (pp. 124, 331) touch on five points that require notice.

1. He is inclined to attribute "the short side tunnel and Warren's shaft" (i.e. my gutter) to Hezekiah, and refers 2 Chron. xxxii, 30, to this work.

2. While he is disposed to attribute the Siloam tunnel also to Hezekiah, he objects to its having been made "in haste."

3. He would derive the name Gihon from the word "*gahan*, to bow down," implying the crouching or grovelling position of one passing through the low passage of the Siloam tunnel.

4. He takes the mention of Gihon in 1 Kings i, 33-45, to be a prolepsis such as is repeatedly met with in the Old Testament.

I am always glad to see objections urged against my "gutter and Araurah" theory, though love for the truth brings me the trouble of exposing their hollowness.

1. Dr. Chaplin's first point, if true, would entirely sweep away my theory, for if Hezekiah made my so-called gutter, Joab could not have got up through it 300 years previously. Captain Warren (1885-64) considered that the short tunnel was *older* than that to Siloam; while Dr. Chaplin practically admits in (1) that the hill (Ophel) above Gihon (Virgin's Fount) was the site of the city of David. Now we have been repeatedly assured (1885, 107; 1887, 106) that this Ophel site is naturally so weak that it never could have been occupied by the stronghold of Zion. Yet the hard fact remains (as I have often shown) that it was actually so occupied. Accordingly, once again I ask, without any expectation of an answer, "What in the world ever led the Jebusites to make their fortress on Ophel, but the insuperable fact that by means of the gutter they would have an inexhaustible supply of water"? This obviously was the only secret of their 400 years' successful resistance, without chariots, and in the mountains. More fortunate than Zion, my theory need not fear any treacherous Araurah.

2. The fact that the tunnel was made from both ends at once, and the unfinished state at the point of junction seems to me to show that it was made "in haste," though I do not say in a short time.

Major Conder (1882, 128) says: "The two narrowest parts of the tunnel occur, one on either side of the point of junction. In fact, the excavators must be accused of scamping their work with the object of showing a greater total length than their rivals, and for this purpose they reduced the size of the excavation to a minimum in which it seems almost impossible that a man could have worked."

Of course it is possible that the excavators at the head of the tunnel

all along made it of the least width practicable, and that it was widened by others working in the rear. The above, however, is evidence enough of "haste."

3. Let it be assumed that Gihon is derived from *gahan*. Then, until the depth of the silt at the lowest parts of the Siloam tunnel has been ascertained, there is nothing to show that "bowing down" was originally more required in the Siloam tunnel than in "my gutter." As, therefore, the latter existed in David's time, so equally might the name of Gihon; and a prolepsis would be utterly unnecessary.

4. But let it be further assumed that no "bowing down" was required in my westward gutter, although Sir C. Warren stated (letters 25) that in clearing out the passage the men seldom had "much more than their heads above water." then I must expose the error in (4) above.

I stated (1890, 200) that "it would be *most unsatisfactory* to have to take 1 Kings i, 33, 45, as speaking proleptically, when Gihon is named by David and Jonathan." In reply to Dr. Chaplin (p. 331) let me point out that his examples (Bethel and Ebenezer) do not meet the case. Gihon is mentioned thrice in 1 Kings i. Now, if I had quoted v. 38, where *the historian* simply records an action, these examples would clearly have proved that I was wrong; for it is certain that the Bible narrative often anticipates the name by which places were called, *e.g.*, Dan is mentioned in Gen. and Deut., before Israel crossed the Jordan, though the name was given after the crossing (Josh. xix, 47).

Accordingly, I did not refer to v. 38, but cited only 33, 45, where *David* and *Jonathan* speak, and not the historian. This alters the whole case. I shall be obliged to any one who will produce satisfactory instances from the Old Testament in which *old* speakers are really made to speak in *new* terms. The Bible contains many explanatory additions, but I cannot find an instance (that will bear investigation) of the *substitution* of one word for another, such as would support Dr. Chaplin's (331) treatment of Gihon as *proleptical*.

The following, no doubt, satisfy some, but not me :—

(a) Gen. xl, 15. "I was stolen away out of the land of the Hebrews." A writer in the *Guardian*, p. 721, asks: "How could Joseph be made to speak of *the land of the Hebrews* by any author before that settlement?" Patrick explained the difficulty 200 years ago. The patriarchs, though living in tents, overcame kings, made treaties, dug wells, and gained fame. Nomads still give their names to the districts they frequent, and did so of old. The land of the Hebrews meant the land frequented by Abraham, Isaac, and Jacob.

(b) 1 Kings xiii, 32. "The saying shall surely come to pass against all the houses of *the high places which are in Samaria*." These are *apparently* the words of the old prophet uttered years before Samaria was built. This, I admit, *seems* a strong instance, and the *Bible Comment.* observes: "The writer of Kings has substituted for the term used by him that whereby the country was known in his own day."

It seems vain for me to object to this explanation without producing a better. The reader, after noting that in v. 2 the expression is simply "high places," may suspend judgment until a third instance has been examined.

(c) Judg. xxi, 19, R.V. "A feast of the Lord from year to year in Shiloh, which is on the north of Bethel, on the east side of the highway that goeth up from Bethel to Shechem and on the south of Lebonah." These, again, are *apparently* the words of the elders to the Benjamites. Now, the land of Benjamin reached to within ten miles of Shiloh. It would, therefore, be superfluous to describe so minutely to the latter the position of Shiloh. The difficulty is met in the A. V. by the insertion of the words *in a place* before *which*. This, however, is inadmissible. Obviously the details about the position of Shiloh are an *explanatory addition* appended when the glory of Shiloh was over and its very site in danger of being forgotten. The words, "which is on," &c., were *not* spoken by the elders, and similarly in (b) the words, "which are in Samaria," are a later explanatory addition, and were *not* actually spoken by the old prophet at all, so that (b) is *not* an instance of substitution. If any critic, by producing sound instances, can drive me from this position, let him do so. I shall cheerfully retire on the one point in question—"that it is *most unsatisfactory* to have to take 1 Kings i, 33, 45 as speaking proleptically when Gihon is named by David and Jonathan." I state this deliberately, because, curiously enough, in 41, 45, Joab and Jonathan apply to Jerusalem (or rather, I believe, to a particular part of it, *i.e.*, the city of David) the "almost solely poetical" term *Kiriah*, whilst this term is never elsewhere in the historical books so applied, except by the Samaritans and in the Persian decree in Ezra iv.

In Ps. xlviii, 2, *Kiriah* is used of the *city* of the great King, *i.e.*, the city of David (1888, 44), and in Is. xxix, 1, of "Ariel, the *city* where David encamped."

If, therefore, the prose writer has substituted Gihon for the actual name used by David and Jonathan, why has he not also substituted the ordinary word *Ir* or *Ar* (city) for the unusual word *Kiriah* used by Joab and Jonathan in the same passage?

Probably this question needs no answer, since it seems to me most likely that the short tunnel is quite as low as the Siloam one, and, therefore, on the assumption that Gihon came from *gahan*, the name may have been in use in David's time quite as easily as in Hezekiah's.

November 6th, 1890.

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## NOTES BY MRS. FINN, M.R.A.S.

## I.

## THE DEAD SEA VISIBLE FROM JERUSALEM.

DURING the last four years of our residence in Jerusalem we lived in the Consulate house, at the north-west corner of Jerusalem, at the highest point by the "Goliath Tower," El Jalûd. From the upper windows we had a fine view of the Dead Sea, backed by the Moab Mountains, on the west of which the walls and towers of Kerek were distinctly visible. In certain lights the sky was reflected from the Dead Sea, as from a looking glass. At other times the reflection of the Moab cliffs in the water was so perfect that it was difficult to make out the water. Josephus probably refers to the Dead Sea as visible from Psephinus—at this same north-west side of Jerusalem. I also have seen the Dead Sea from the roof of Christ Church.

## II.

## ARAUNAH THE JEBUSITE.

THE quotation from 2 Sam. xxiv, 23, on p. 198 of the July *Quarterly* should read "All these did Araunah *the* king המלך (not *a* king) give unto the king." Araunah was "the king."

The word "Tyropean" on the same and other pages should, of course, be Tyropæon.

## ON THE SITE OF THE HOLY SEPULCHRE.

By HENRY GILLMAN, Esq, U.S. Consul, Jerusalem.

I HAVE seen, from time to time, lately, statements to the effect that all recent discoveries have tended to establish the accuracy of the traditional site of the Holy Sepulchre. Nothing can be more contrary to the truth. The recently discovered Roman pavements, in connection with those uncovered two years ago or more, establish the position of Damascus gate as occupying an ancient site; and the discoveries in general all point to outside the gate as the place of crucifixion.

## STONE MASK FROM ER-RAM.

DR. CHAPLIN'S stone mask from Er-Râm is curious. I have seen several of somewhat similar make, but of pottery, found near Um-rît, in Northern Syria, one, I think, representing a bearded head, is in the Ashmolean Museum at Oxford. I have been disposed to regard these objects as Græco-Phœnician, and as being, perhaps, of votive character.

GREVILLE J. CHESTER.

## BIBLIOTHECA GEOGRAPHICA PALÆSTINÆ.

By PROFESSOR DR. REINHOLD RÖHRICHT. 1890.

EVERY student of the geography of Palestine must feel grateful to Prof. Röhricht for undertaking the very laborious task of compiling a bibliography and cartography of Palestine; and to the Berlin Geographical Society and Russian Palestine Society for enabling him to publish the result of his labours.

The Bibliography contains a reference to all works of any value on the geography and topography of Palestine from the fourth century to the present day; and to important articles in periodicals on the same subject. There are no less than 3,515 entries, representing as many different travellers or authors; and the catalogue of the MSS., translations, and printed editions of their works, and of the articles connected with them, occupies 597 closely printed pages.

It is interesting to notice the extraordinary growth of Palestine literature during the present century, and especially since Dr. Robinson first commenced a systematic examination of the geography of the Holy Land. Thus, for the 16th century there are 321 entries; for the 17th, 401; for the 18th, 318; for the 19th, 1,920, of which 1,629 are later than Dr. Robinson's first visit to Palestine in 1838.

The system adopted by Prof. Röhricht is to give in each case (1) a reference to all known MSS. of the work; (2) the titles of all printed editions; (3) a reference to translations; and (4) references to articles in magazines and newspapers which relate to the author or his subject.

The Bibliography has been prepared with great care; but, as is only natural in a work of such magnitude, there are many typographical errors. These are more numerous in the English references than in those in other languages, and it is much to be regretted that Prof. Röhricht did not get some Englishman acquainted with Palestine literature to revise

his proofs. These are, however, minor blemishes, and do not detract from the great value of the work as a whole.

The *Cartography* is the first real attempt that has been made to prepare a list of the maps and plans of Palestine, and, as such, though it is far from complete, it is of great interest and value.

Prof. Röhricht's book is not one for the general reader, but every one who wishes to study the geography and topography of the Holy Land, and to consult the original authorities, will find it invaluable as a work of reference.

It is very important that the bibliography of Palestine should be kept up to date. Articles of great interest appear from time to time in the monthly magazines, in the "Athenæum," in the "Academy," and in the daily papers, which, after the lapse of a few years, become difficult to trace when reference is necessary or desirable. I hope that, in future, it may be found possible to devote a page of each *Quarterly Statement* to the Palestine literature of the preceding Quarter. This should give the full titles of all published works, and references to all articles, published correspondence, &c., that have appeared in magazines or newspapers. The labour would not be great if subscribers sent a note of articles they have seen to the Secretary once a quarter. This Quarterly Bibliography would in time become extremely valuable, and it would greatly help Prof. Röhricht should he ever bring out a second edition of his great work.

C. W. W.



# THE PALESTINE EXPLORATION FUND.

## NOTES AND NEWS.

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The Fund has sustained a great loss in the death of the late Archbishop of York. His Grace always took keen personal interest in the conduct of the Society, and for twenty-four years had been its President. His knowledge of Palestine subjects was extensive, as shown in his articles in Smith's "Dictionary of the Bible," and in the work which he edited, called "Aids to Faith." During the years 1869 and 1870 he attended the meetings of the Committee, and advised upon important matters in the beginning of the Society's operations in the Holy Land.

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The Archbishop of Canterbury has kindly consented to become the new President of the Fund. His Grace has written the following letter to the Chairman :—

"LAMBETH PALACE, S.E.

"My dear Sir,—I am greatly honoured by the request of yourself and the Committee that I should accept the Presidency of the Palestine Exploration Fund.

"It gives me very much pleasure to accept the position. I have always felt the greatest interest in the work of the Society, which has, with a steady progress, become so extensive and has so deepened our intelligence of the Bible History.

"I thank you much for the monograph on Lachish.

"Very truly yours,  
" (Signed) E. W. CANTUAR.

"JAMES GLAISHER, ESQ."

We regret to announce the death of the Rev. Henry Geary, Vicar of St. Thomas's, Portman Square, who was for more than twenty years one of the lecturers for the Fund. Mr. Walter Besant writes respecting him:—

“I have known Henry Geary for many years, ever since we were students together in the same year at King's College, London. He was the classical scholar, I believe, of his year. He went to Cambridge the year after me, and I saw him little, but still occasionally, and always with the old *camaraderie* that exists between fellow-students.

“He was always intended for Holy Orders, and he always, from the first, concentrated his whole work and attention upon such branches as would prove most useful in after life. For instance, he saw that Greek and Latin would be more useful to him as a clergyman than science, and he chose Greek and Latin. Also, he very early understood what many, or most, clergymen fail to understand, that he who has the gift of speech and cultivates it, doubles and trebles his powers of usefulness as a clergyman. Therefore, with the object of developing his own gift of speech, which was very considerable, he spoke often at the Debating Society of King's and at the University, Cambridge.

“He began his life's work, I believe, at St. James' Piccadilly. From that church he went to Herne Bay, where he held a living for many years, being transferred about ten years ago to the church of Portman Square. Perhaps, had he lived, further advancement would have been given to him.

“His connection with the Fund sprung entirely out of his interest in the work. For some years he lectured a great deal for the Society, and he never ceased his interest in the work and his belief in the great importance of its results and discoveries. The Society has lost in Geary a true and tried friend.

“W.B.”

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The premises at 1, Adam Street, being now too small for the purposes of the Fund, the Committee, after long and careful enquiry and consideration, have taken rooms at 24, Hanover Square, W., which will afford space not only for the ordinary work of the office, but also for the exhibition of the most interesting of the objects which have been collected from time to time by the officers of the Fund.

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After spending a month in Egypt with Mr. Petrie, Mr. F. G. Bliss proceeded to Jaffa and Jerusalem, where he has been engaged in making preparations for the exploration work at Tell el Hesi. Mr. Petrie has advised that the first month should be spent in working over the low west town, which is Amorite, and must be explored and turned over before the hill is touched, so that earth can be then thrown down upon it from the hill. Mr. Bliss has arranged with the Governor of Jerusalem for the services of the Effendi who was with Mr. Petrie last year. The weather has been very severe, and this caused some delay. A Russian ship has been driven ashore at Jaffa, but all the passengers and crew, except two or three, were saved. Mr. Bliss is now at Tell el Hesi. His first reports will be found in the present number.

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We have received from the Foreign Office a copy of a letter from Mr. W. H. Kayat, reporting that, owing to his endeavours, the Siloam Inscription has been

recovered and handed over to the Turkish authorities. The Greek, in whose possession it was found (see *Quarterly Statement*, January, 1891, page 2) stated that he bought it for thirty-five napoleons, from a Fellah, whose name he could not remember. Unfortunately, the stone bearing the Inscription has been broken in removal.

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Mr. Henry Gillman, of Jerusalem, writes :—

“You will be interested in knowing that both the Siloam Inscriptions<sup>1</sup> have been recovered, and are now in the possession of the local Turkish authorities. I saw them recently in the *salon* of the Governor of Jerusalem in the wooden case in which they are to be shipped to the Museum at Constantinople, by order of the Government.”

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In examining the interior of the vaults known as “Solomon’s Stables,” in the Haram Area at Jerusalem, which have been partially cleared out by the Moslems, Mr. G. R. Lees has discovered the spring of an ancient arch similar to “Robinson’s Arch.” It is situated about 57 feet from the inside of the southern wall and about 175 feet from the inside of the eastern wall of the enclosure. Close to this spring of an arch a subterranean passage was found by the Rev. J. E. Hanauer running in a south-easterly direction. These discoveries having been reported by Mr. Lees and Mr. Hanauer to Herr Schick, he has made a plan and section showing them, which will be published in the next *Quarterly Statement*, together with a photograph by Mr. Lees, and an article on the subject by Thomas Wrightson, Esq., M.I.C.E.

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Mr. G. R. Lees reports that some tombs situated 350 yards north of the Damascus Gate having been opened, a number of *ossuaires* were discovered, some ornamented, some plain, and two bearing inscriptions. Squeezes of these inscriptions have reached us as we are going to press, but too late for reproduction in the present number.

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A Committee which has been formed to consider how Jerusalem may be provided with a plentiful supply of water, met on March 4th, at the house of Sir Edmund Lechmere, Bart., M.P. A subscription was opened for defrayment of preliminary expenses, and a Sub-Committee chosen for carrying out the object in view. An important feature of this movement is that several leading members of the London Jewish Community have joined the Committee.

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Dr. Post’s second essay on “The Sects and Nationalities of Palestine,” is published in the present number. The first of this important series of papers appeared in the *Quarterly Statement* for April, 1890.

<sup>1</sup> One of these appears to be the forgery alluded to in the *Quarterly Statement* for January, 1891, page 3. A copy of it is in the office of the Fund.  
—[ED.]

Mr. F. J. Bliss has furnished an elaborate paper on "The Maronites," which will shortly be published.

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Mr. W. H. Kayat, who was Acting British Consul at Jerusalem at the time Mr. Flinders Petrie was robbed (see *Quarterly Statement*, 1890, page 237) has written to say that he made a strong representation to the Governor of Jerusalem on the subject, and also communicated with the Kaimakam of Hebron, who caused three Sheikhs from Dawaimeh to be imprisoned for six weeks, but with no result, so far as the detection of the robbers was concerned. The guide engaged by Mr. Petrie from Dawaimeh was also imprisoned, but refused to disclose the names of the offenders. Mr. Petrie writes (from Egypt) that he has no doubt "Mr. Kayat acted with the best good will in his representations," and that the want of success "was not due to lack of action on his part."

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The returns of the meteorological observations made by Dr. Torrance at Tiberias during the past two years have been received. These will be of quite exceptional interest, owing to the position of that place, 682 feet below the level of the Mediterranean.

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Last year some meteorological instruments were entrusted by the Fund to Mr. Lethaby, the missionary of Kerak. Unfortunately the *maximum* and *minimum* thermometers having become damaged have been sent back to be repaired. The rain gauge and dry and wet bulb thermometers are, however, in working order, and in spite of all the difficulties of his position, Mr. Lethaby "hopes for success at last" in securing a reliable series of observations. Those who have read Mr. Gray Hill's recent experiences at Kerak will appreciate Mr. Lethaby's courage and determination.

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It may be well to mention that plans and photographs alluded to in the reports from Jerusalem and elsewhere cannot all be published, but all are preserved in the offices of the Fund, where they may be seen by subscribers.

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The first volume of the "Survey of Eastern Palestine," by Major Conder has been issued to subscribers. It is accompanied by a map of the portion of country surveyed, special plans, and upwards of 350 drawings of ruins, tombs, dolmens, stone circles, inscriptions, &c. The edition is limited to 500. The first 250 subscribers pay seven guineas for the three volumes; subscribers to the "Survey of Western Palestine" are privileged to have the volumes for this sum. The price will be raised, after 250 names are received, to twelve guineas. The Committee are pledged never to let any copies be subscribed under the sum of seven guineas. Mr. A. P. Watt, 2, Paternoster Square, is the Sole Agent. The attention of intending subscribers is directed to the announcement after Maps and before Contents of this number.

Mr. H. Chichester Hart's "Fauna and Flora of Sinai, Petra, and the Wady 'Arabah" has been completed and sent out to subscribers.

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The following ladies and gentlemen have kindly consented to act as Honorary Local Secretaries :

Miss Mary Adelaide Lewis, The Deanery, Bangor.  
 Miss Garnons Williams, Abercamlais, Brecon.  
 Rev. Maurice Day, Killiney, Co. Dublin.  
 Rev. Arthur McCullagh, M.A., St. Hilda's Church, Hartlepool.  
 Benjamin Holgate, Esq., Regents House, Grosvenor Road, Headingley, Leeds,  
 Rev. J. Mitchell, 57, Parkgate Road, Chester.  
 Rev. E. Herbruck, Ph.D., Editor of the "Christian World," Dayton, Ohio.

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The Committee have to acknowledge with thanks the following donations to the Library of the Fund, viz. :—

"Les Antiquités Sémitiques," by M. Clermont-Ganneau, from the Author.  
 "De Bordeaux à Jerusalem," by Le Frère Meunier, from the Author.  
 Reports of the Smithsonian Institute, 1888.

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The Committee have added to their list of publications the new edition of the "History of Jerusalem," by Walter Besant and E. H. Palmer (Bentley & Son). It can be obtained by subscribers, carriage paid, for 5s. 6d., by application to the Head Office only. The "History of Jerusalem," which was originally published in 1871, and has long been completely out of print, covers a period and is compiled from materials not included in any other work, though some of the contents have been plundered by later works on the same subject. It begins with the siege by Titus and continues to the fourteenth century, including the Early Christian period, the Moslem invasion, the Mediaeval pilgrims, the Mohammedan pilgrims, the Crusades, the Latin Kingdom, the victorious career of Saladin, the Crusade of Children, and many other little-known episodes in the history of the city and the country.

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The books now contained in the Society's publications comprise an amount of information on Palestine, and on the researches conducted in the country, which can be found in no other publications. It must never be forgotten that no single traveller, however well equipped by previous knowledge, can compete with a scientific body of explorers, instructed in the periods required, and provided with all the instruments necessary for carrying out their work. The books are the following (*the whole set can be obtained by application to Mr. George Armstrong, for £2, carriage paid to any part in the United Kingdom only*) :—

By Major Conder, R.E.—

- (1) "Tent Work in Palestine."—A popular account of the Survey of Western Palestine, freely illustrated by drawings made by the author himself. This is not a dry record of the sepulchres, or a descriptive catalogue of ruins, springs, and valleys, but a continuous narrative full of observations upon the manners and customs of the people, the Biblical associations of the sites, the Holy City and its memories, and is based upon a six years' experience in the country itself. No other modern traveller has enjoyed the same advantages as Major Conder, or has used his opportunities to better purpose.
- (2) "Heth and Moab."—Under this title Major Conder provides a narrative, as bright and as full of interest as "Tent Work," of the expedition for the *Survey of Eastern Palestine*. How the party began by a flying visit to North Syria, in order to discover the Holy City—Kadesh—of the children of Heth; how they fared across the Jordan, and what discoveries they made there, will be found in this volume.
- (3) Major Conder's "Syrian Stone Lore."—This volume, the least known of Major Conder's works, is, perhaps, the most valuable. It attempts a task never before approached—the reconstruction of Palestine from its monuments. It shows what we should know of Syria if there were no Bible, and it illustrates the Bible from the monuments.
- (4) Major Conder's "Altaic Inscriptions."—This book is an attempt to read the Hittite Inscriptions. The author has seen no reason to change his views since the publication of the work.
- (5) Professor Hull's "Mount Seir."—This is a popular account of the Geological Expedition conducted by Professor Hull for the Committee of the Palestine Fund. The part which deals with the Valley of Arabah will be found entirely new and interesting.
- (6) Herr Schumacher's "Across the Jordan."
- (7) Herr Schumacher's "Jaulân."—These two books must be taken in continuation of Major Conder's works issued as instalments of the unpublished "Survey of Eastern Palestine." They are full of drawings, sketches, and plans, and contain many valuable remarks upon manners and customs.
- (8) "The Memoirs of Twenty-one Years' Work."—This work is a popular account of the researches conducted by the Society during the past twenty-one years of its existence. It will be found not only valuable in itself as an interesting work, but also as a book of reference, and especially useful in order to show what has been doing, and is still doing, by this Society.
- (9) Herr Schumacher's "Kh. Fahil." The ancient Pella, the first retreat of the Christians; with map and illustrations.
- (10) Names and Places in the Old and New Testament and Apocrypha, with their modern identifications, with reference to Josephus, the Memoirs, and *Quarterly Statements*.

(11) Besant and Palmer's "History of Jerusalem," already described.

(12) Northern 'Ajlûn "Within the Decapolis," by Herr Schumacher.

To the above must now be added Mr. Henry A. Harper's "The Bible and Modern Discoveries," a cheap edition of which has recently been issued—price to the public, 7s. 6d.; to subscribers to the Fund, 5s. Mr. Guy le Strange's important work "Palestine under the Moslems," price to the public, 12s. 6d.; to subscribers to the Fund, 8s. 6d.; and Mr. Flinders Petrie's account of his excavations at Tell el Hesi (Lachish), price to the public 10s.; to subscribers to the Fund, 6s. 6d.

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The work of Mr. Guy le Strange on "Palestine under the Moslems" was published in April, 1890.

For a long time it had been desired by the Committee to present to the world some of the great hoards of information about Palestine which lie buried in the Arabic texts of the Moslem geographers and travellers of the Middle Ages. Some few of the works, or parts of the works, have been already translated into Latin, French, and German. Hardly anything has been done with them in English, and no attempt has ever been made to systematise, compare, and annotate them.

This has now been done for the Society by Mr. Guy le Strange. The work is divided into chapters on Syria, Palestine, Jerusalem, and Damascus, the provincial capitals and chief towns, and the legends related by the writers consulted. These writers begin with the ninth century and continue until the fifteenth. The volume contains maps and illustrations required for the elucidation of the text.

The Committee have great confidence that this work—so novel, so useful to students of mediæval history, and to all those interested in the continuous story of the Holy Land—will meet with the success which its learned author deserves. The price to subscribers to the Fund is 8s. 6d.; to the public, 12s. 6d.

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The new map of Palestine, so long in hand, is now ready. It embraces both sides of the Jordan, and extends from Baalbek in the north to Kadesh Barnea in the south. All the modern names are in black; over these are printed in red the Old Testament and Apocrypha names. The New Testament, Josephus, and Talmudic names are in blue, and the tribal possessions are tinted in colours, giving clearly all the identifications up to date. It is the most comprehensive map that has been published, and will be invaluable to universities, colleges, schools, &c.

It is published in 21 sheets, with paper cover; price to subscribers to the Fund, 24s., to the public, £2. It can be had mounted on cloth, rollers, and varnished for hanging. The size is 8 feet by 6 feet. The cost of mounting will be extra (*see Maps*).

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The third edition of Mr. Henry A. Harper's book, on "The Bible and Modern Discoveries," having been sold out, a new and cheap edition was

issued in February. The work is an endeavour to present in a simple but yet connected form the Biblical results of twenty-two years' work of the Palestine Exploration Fund. The writer has also availed himself of the discoveries made by the American Expeditions and the Egyptian Exploration Fund, as well as discoveries of interest made by independent travellers. The Bible story, from the call of Abraham to the Captivity, is taken, and details given of the light thrown by modern research on the sacred annals. Eastern customs and modes of thought are explained whenever the writer thought they illustrated the text. To the Clergy and Sunday School Teachers, as well as to all those who love the Bible, the writer hopes this work will prove useful. He is personally acquainted with the land, and nearly all the places spoken of he has visited, and most of them he has moreover sketched or painted. The work is illustrated with many plates, and a map showing the route of the Israelites and the sites of the principal places mentioned in the sacred narratives. It should be noted that the book is admirably adapted for the school or village library.

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Branch Associations of the Bible Society, all Sunday School unions within the Sunday School Institute, the Sunday School Union, and the Wesleyan Sunday School Institute, will please observe that by a special Resolution of the Committee they will henceforth be treated as subscribers and be allowed to purchase the books and maps (by application only to the Secretary) at reduced price.

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The income of the Society, from December 19th to March 21st, was—from annual subscriptions and donations, including Local Societies, £704 17s. 8d.; from all sources, £1,254 0s. 8d. The expenditure during the same period was £1,277 15s. 0d. On March 21st, the balance in the Bank was £754 4s. 2d.

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Subscribers are begged to note that the following can be had by application to the office, at 1s. each:—

1. Index to the *Quarterly Statement*, 1869–1880.
  2. Cases for Herr Schumacher's "Jaulân."
  3. Cases for the *Quarterly Statement*, in green or chocolate.
  4. Cases for "Abila," "Pella," and "'Ajlân" in one volume.
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Early numbers of the *Quarterly Statement* are very rare. In order to make up complete sets, the Committee will be very glad to receive any of the following numbers:—

No. II, 1869; No. VII, 1870; No. III, 1871; January and April, 1872; January, 1883, and January, 1886.

It having again been reported to the Committee that certain book hawkers are representing themselves as agents of the Society, the Committee have to caution subscribers and the public that they have no book hawkers in their employ, and that none of their works are sold by itinerant agents.

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While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee wish it to be distinctly understood that by publishing them in the *Quarterly Statement* they neither sanction nor adopt them.

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Subscribers who do not receive the *Quarterly Statement* regularly are asked to send a note to the Secretary. Great care is taken to forward each number to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

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The only authorised lecturers for the Society are—

- (1) The Rev. Thomas Harrison, F.R.G.S., Member of the Society of Biblical Archaeology. Address: Rev. Thomas Harrison, 38, Melrose Gardens, West Kensington Park, W. His subjects are as follows:—

- (1) *Research and Discovery in the Holy Land.*
- (2) *In the Track of the Israelites from Egypt to Canaan.*
- (3) *Bible Scenes in the Light of Modern Science.*
- (4) *Eastern Palestine.*
- (5) *The Dead Sea and the Cities of the Plain.*

- (2) The Rev. Charles Chidlow, M.A., Caio Vicarage, Llandilo:—

*Recent Discoveries\* in Bible Lands.*

Application for Lectures may be either addressed to the Secretary, 1, Adam Street, or sent to the address of the Lecturers.

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## REPORTS FROM MR. F. J. BLISS.

JAFFA,

*February 20th, 1891.*

I ARRIVED here on Monday 16th, and began at once the tedious labour of arranging a tram to facilitate the removal of earth from the excavations. The matter took me five days in Cairo. The Government people—Colonel Ross, Sir Colin Moncrieff, Mr. Perry, and others—were very kind, and I made thorough inquiries but found that though I could buy second-hand tram stuff, it would be very expensive. For example, I was offered a complete tram-line four or five times the needed length, with ten wagons, for 160*l*. This would then have to be transported from Suez. They would not divide the plant and sell me part. The people at the Barrage asked 20*l*. a truck to contain a cubic metre of earth. Finally I was directed to a foundry where I purchased 16 pairs of iron wheels (second-hand) with axles, and was advised to bring them to Jaffa and have trucks made here and also wooden rails with an iron cap.

I have spent a wearisome five days trying to get estimates from the German carpenter and wagon-builder here. The contract is at last signed, and he has agreed to make the hard wood rails with iron cap for a line of 60 metres, with ties, and to construct 8 trucks of wood and iron (to tip earth either side) upon the wheels and axles which are to come from Cairo, for the sum of 51*l*.

This, after two weeks' work, is the cheapest that I can do, though it seems a large price, for the iron bought in Cairo cost somewhat over 8*l*., making the whole about 60*l*.

I have had to advance the wagon-builder 20*l*., which he agrees in the contract to refund in case he does not keep to the terms. If the iron arrives in a fortnight he agrees to furnish the rails and trucks in six weeks from this time.

Mr. Petrie thinks that the first month should be spent in working over the low west town, which is Amorite, and must be explored and turned over before the hill is touched, so that earth can be then thrown down upon it from the hill. He thinks that this low west town may be as valuable a place to dig as anywhere else, and must be done and done first.

I had a profitable month in Egypt with Mr. Petrie. I came from Port Said by the Austrian steamer, but had fully intended taking the Russian a day later. She now lies a wreck off the shore here, and yesterday morning I saw the most thrilling sights. It is supposed that

all but two or three were saved. One of the directors of the French Railway Company has been very kind with advice, and I have had advice from others.

*Tell-el-Hesi, March 9th, 1891.*

At last I write from this address. The Effendi and I left Jerusalem on Thursday the 5th, and the next day had a long day's ride from Ramleh.

Some of the ditches were quite bad, but the mules got over them all without serious accident. The country is simply charming, with its rolling greenness of grass and wheat and sweet scented beans. My own horse, brought from Beirût by my man Yusif, is delighted to graze all day near the tent. The Effendi is happy because no Arabs are near and the tribes are at peace. By the way the Effendi is really a very nice fellow; he boasts rightfully of his descent from the great Khalid, and his family is much honoured. He is very intelligent, kindly and accommodating.

Of course these first two or three days I have employed no workmen, but spent my time in tracing Petrie's work very carefully. On the whole, the heavy rains have rendered it easier to trace the brickwork, as the moisture brings out differences of earth colouring. Some of Petrie's points I cannot yet determine, but in general the brickwork is more clearly traceable than I expected. What astonishes me is that he did such an amount of work in so short a time. But then one must add to his six weeks actually spent here, the years of acquaintance with brick in Egypt.

The stone steps and guard-house at the south-east of the town have been removed by the villagers. My man Yusif will be a great help, as he has a keen scent for brick in its various stages of decay. Unfortunately the west town, where Petrie strongly advises me to begin work, is covered with crops as is the Tel. Buying these out will necessitate some outlay of cash. I am very sorry Major Watson was prevented from visiting me here.

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# ESSAYS ON THE SECTS AND NATIONALITIES OF SYRIA AND PALESTINE.

## ESSAY 2, INTRODUCTION.

By REV. GEORGE E. POST, M.A., M.D., F.L.S.

*Land Tenure, Agriculture, Physical, Mental, and Moral Characteristics.*

### I.—LAND TENURE.

THERE exist in Syria and Palestine nearly all the forms of land tenure which prevail now, or have prevailed, in the world.

#### 1. *Mulk.*

This corresponds accurately to *freehold property*. Perhaps the best illustration of this kind of property is to be obtained from the translation of the deed of the writer's own premises at Ras Beirût, next to the Syrian Protestant College.

It must be premised that, at the time the purchase was made, foreigners were not entitled by Turkish law to acquire or hold real property within the limits of the Empire. But long usage had established a mode of obtaining such property, which was respected by the Government, and quite safe before the Protocol by which foreigners were allowed to become proprietors of real estate. A native of the country appeared in court, and bought the property, as if for himself, and with his own money. He then went to the Consulate of the real purchaser, and executed a deed in which he declared that he had bought the property with the money, and for the behoof of the real purchaser, and that he, the ostensible buyer, had no right or claim whatever in the aforesaid transaction. The following is a translation of the original deed :—

[Name and seal of the Administrators.]

"Praise be to God Almighty.

"In the Court of the Honourable Law, and the Assembly of the noble Government, in the city of Beirût, in the presence of its ruler, our master, the Legal, *Hanafite*<sup>1</sup> Administrator, who has placed his able

<sup>1</sup> *Hanafite* refers to Abu-Hanîfah, whose name was en-Nu'mân, Ibn Thâbit, Ibn-en-Nu'mân, Ibn-Marzabân, the Persian, leader of the Hanafite sect, which is that of the Ottoman Sultans.

name and seal above, may his advantage last, and his exaltation increase, there presented himself *Nâsir-ed-dîn*, the son of Hassan, the son of Muhammed of Shuweifât, and sold what he possessed, and was his by freehold right and usufruct, and what had become his by legal purchase and improvement, and was confirmed to him by a legal deed in his possession, to the one who has now drawn up this legal agreement, *Khawajah Michail, Ibn-Yunus-el-Gharzâze*, who has bought *with his own money, for himself*, the property [here follows the minute description of the boundaries of the property], with all the rights appertaining thereto, and its roads and belongings, and that by which it is known and legally specialized, from all sides and directions, *a true and legal, confirmed and permanent sale and purchase*, by the consent and acceptance and mutual agreement of both parties, free from all conditions of deceit, and from all reconsideration and reservation, and with a complete legal surrender. The foregoing sale was made in two parts, each as an independent act by itself, the first being three out of twenty-four qirâts,<sup>1</sup> for two hundred

<sup>1</sup> It is the custom of all Oriental lands to measure everything by a standard of twenty-four carats (Arabic *Qîrat*). The qirât literally means an inch, or the twenty-fourth part of the dra', or Arabic Ell. Our English expression, eighteen-carats fine, for gold, is a survival of this usage. It signifies that the metal contains eighteen parts of gold in twenty-four of the alloy. Everything here is supposed to be made up of twenty-four carats, and its half of twelve carats, and the fourth of six carats, and so on. Thus a patient or his friends will ask a physician how many qirâts of hope there are in his case. A man will say that there are twenty-three carats of probability that such an occurrence will take place. A company divides its shares by carats. In this case the property was divided into twenty-four carats not in the sense that certain parts of it were set off from the other parts, but that a twenty-fourth part of the whole property was contained in each carat. Three carats were then sold for two hundred Turkish pounds. That is, one-eighth of the whole property, distributed through the whole, is sold for nearly half the total price, and this sale was completed before the other twenty-one carats were sold for a little more than the half of the total price. The object of this form of sale is to evade the prior rights of a neighbour or a partner to purchase the property over the head of an outside bidder at the price named. The law of *Shuf'ah*, which confers the above-mentioned right, is as follows:—

*Shuf'ah* consists of three kinds—(1) When the claimant is a partner in the ownership of the property to be sold. In that case his claim is per caput, not according to the value of his share. (2) When the claimant is a partner in certain rights in the property to be sold, such as the use of water privileges or right of way. (3) When the claimant is a neighbour, whose property is in immediate contact with that to be sold. If a sale is affected to a person not entitled to the claim of *Shuf'ah*, and any of those in either of the above three categories asserts his claim, he may compel the buyer to surrender the property at the price at which he bought it. If the claimant does not assert his claim until the transaction is completed he forfeits his rights, and the sale is valid and inalienable by *Shuf'ah*. If, however, the claimant, or any one of the claimants (for they may be numerous), be absent at the time of the sale, he may at any

Turkish pounds, and the second part of twenty-one qirâts of the whole for two hundred and thirty-five Turkish pounds, and both of the aforesaid sums from the money of the above-mentioned buyer were paid into the hand of the aforesaid seller exactly as confessed by the latter in the court, and all this after previous information and consideration, and legal agreement between the two contracting parties, according to the recognised method, by mutual consent and choice, without force or compulsion on either, each having put aside corrupt deceit and double-dealing toward the other, could such a thing be supposed of him.<sup>1</sup> Also the obligation of restitution belongs legally to the before-mentioned seller.<sup>2</sup> Then there appeared Haj Muhamonad,<sup>3</sup> Ibn-Haj-Muhammad-el-'Alâili,

time on his return, assert and obtain his claim, provided he do so immediately on his arrival. So important is it deemed in law that this claim should be pressed at once or not at all, that it is expressly provided that if, on arriving, the claimant goes first to a mosque or church to offer prayer before he has asserted his claim of Shuf'ah, he has forfeited his right. He may not even go to the bath, nor change his raiment, however travel-stained it may be, but must proceed at once to the government offices and lodge his claim without delay.

The danger of an unexpected claimant appearing and snatching away a property when it has been in the possession of a purchaser for years has led to the custom of selling in two parts, the first a small fraction of the property, distributed through the whole, for a proportion of the total sales price so large that a claimant would be unwilling to assert his claim. By the purchase of the second part after the first the purchaser is sure of that portion, as the neighbour or partner is only entitled to claim that which is, so to speak, contiguous to his pre-existing rights. Should he assert his claim to the first part, and take it away from the purchaser, his act, being subsequent to both sales, does not vitiate the right of Shuf'ah which the purchaser acquired over the second part by his temporary possession of the first. Furthermore, as his right to the second part is now confirmed, he thereby acquires a Shuf'ah of partnership with the owner of the first part, which will prevent him from selling to anyone but himself. So effectual is this subterfuge of the law that it has been adopted into all deeds.

<sup>1</sup> It is repugnant to Oriental ideas of courtesy and refinement to attribute to anyone ill conduct or unworthy motives, consequently the legal terms in which the possibility of deception and fraud are admitted, also provide for the exoneration of both parties from such an injurious suspicion.

<sup>2</sup> This clause refers to a custom, once in force, of exacting from the seller of a bond, that, in case there should be any flaw in the title, or for any cause the buyer should not get possession of his property, the seller should be obliged to repay the price of the purchase. This bond being no longer exacted, the clause here inserted is supposed to secure to the buyer the safety of his payment.

<sup>3</sup> The person who appeared here was a mortgagee of the property. He appears in Court and declares that his mortgage is satisfied, and that he has no further claim on the property. This is also a fiction of the law, as the seller usually has no money to pay until the sale is concluded, and the buyer will not pay the money until he has his deed. But the Court will not grant the deed

and witnessed the sale of the property, with its belongings, legal witness, by means of his plain utterance that the sale was genuine and legal, and that he had no property, or right, or case of any kind, and that although the property had been mortgaged to him for a certain sum, he had received the said sum entire from the seller, and that he had no right over him at all, and granted his permission to have his testimony to the above given freely and willingly.

"Written on the nine and twentieth of Jamâda the Second, in the year one and ninety and two hundred and a thousand:<sup>1</sup>

"[Witnesses names.]"

Such a deed as the above is a sample of the more elaborate of the deeds of city property. It would seem, on the face of it, to give over forever the rights of the real purchaser to the supposititious one. To correct this the ostensible purchaser gave the following declaration in the Consulate of the real owner.

"The reason for this declaration.

"On the date mentioned at the foot, there personally appeared in this Consulate, Michail-Ibn-Yunus-el-Ghurzûzi, a resident of Beirût, and declared in the presence of the witnesses mentioned below, that the piece of ground and buildings which he had purchased of Nâsir-ed-dîn Ibn-Hassan, Ibn-Muhammed-esh Shuweifâti [here follows the description of the property as in the original deed] was not his property, and that he had no right of property in it, but that it was the property of Dr. George Post, the American, and his own possession, and that the price had been paid out of the money of the latter, and Mr. Michail Ghurzûzi further declared that his name in the before-mentioned deed was introduced only as a borrowed name, and a legal fiction, and to make the same clear, he wrote this deed, signed at the foot by the aforesaid witnesses, and caused it to be registered in the Consulate of the United States of North America in Beirut, on the twenty-first of August, 1874.

"[Witnesses.]"

Soon after the above property was acquired and transferred as above, the Protocol, which granted to foreigners the right to hold property, was signed, and a new deed of sale was made out in conformity with this Protocol, in which Mr. Ghurzûzi figured as the seller, and Dr. Post was the purchaser. The latter remains the permanent deed of the property.

In interior towns and country districts, deeds are somewhat simpler in their wording, but of similar import. The Government claimed, and perhaps with justice, that corrupt practices had crept in. In some cases persons had introduced a stranger, and two witnesses had sworn to his identity with the owner of the property, and then the court proceeded to give a deed in the name of the bogus owner, and this deed was afterwards recognised as genuine in the court, and so the owner was defrauded of his rights. To correct this abuse the Government devised the Tâbu until all the parties concerned admit the payment and receipt of the several sums due from them or to them.

<sup>1</sup> The order of the numerals is the usual one in all Mohammedan writings.

system, in which all old deeds are required to be replaced by new papers, called *Aurâq-et-Taṭwīb* (i.e., papers of the Ṭābu). Such papers can only be obtained on application to the Governor-General of the province, who refers them to the several departments in which the registers of property are kept, and only after a thorough search into the particulars detailed are the papers issued. The advantage of this system is claimed by the Government to be on the side of the property holders, though it is generally believed by the latter to be in the interest of the Exchequer, which thus realises a heavy tax from all holders of real estate for another deed, which seems to them no better than the old. The following are the details of a Ṭābu paper :—

<i>Turkish Original.</i>	<i>Translation.</i>
Liva ....	Province (the Governor, a Muta-sarrif).
Quḍa ....	County (the Governor, a Qaïmaqâm).
Qaşabah or Qura ....	City or village.
Maḥallah wa Mauq'a ....	The quarter of the town or county in which the property lies.
Roqm-abwâb wa Yakhûd-tahrîr ....	The number on the door of the house.
Amlâk-numerosi, ....	The number in the Domesday Book.
Nau 'Musqafât wa maghrûsât ....	The kind of property, whether houses or land.
Nau' Ard ....	Whether improved or unimproved.
Hudûd-arba'ah ....	Boundaries of property.
Muqdar dhîrâ' ....	Number of ells.
Dunem ....	Number of Dunems. The Dunem is 1,600 dhîrâ's.
Muqâta'ah-sanawîyah ....	Yearly income.
Jehât-i'ṭâ sanad ....	The place where the Ṭābu paper was issued.
Malik wa Malikah ....	Names of male and female owners.
Tamallak Abdan ....	Names of buyers.
Baî' ....	Names of sellers.
Intiqâl ....	Whether the property is from inheritance.
Maḥlûl Şarf ....	If the property be Crown land, by what authority was it sold.
Thaman ....	Price of sale.
Qîmat mukhammanât ....	Appraised value.
Kharj ....	Tax.
Kaghid biha....	Price of paper.
Badal muzâyadah ....	Auction price.

There follows a sentence of which the ensuing is a free translation :—

The Imperial Bureau of Real Estate gives for the aforesaid property

Hakim (Ruler).      Muhasibji (Accountant).      Defdar

Khaqâni (Imperial Register).      şandaq Amîni (Treasurer.)

On properties of this class a tax called Wirku is collected annually. If the property is of the dwelling-house kind  $\frac{8}{1000}$  of its appraised value are taken. If a house for rental, or a garden producing fruit, or a shop, or other property yielding income, 1 per cent. is taken. Beside this tax on garden or orchard property for the benefit of the Imperial revenue a heavy octroi tax is collected for municipal purposes.

In the Buqa', and about Hems, Hama, Damascus, Haurân, and the other great plains, the property is partly owned by the freeholders of the villages, but more usually by large capitalists, who let the land to the cultivators of the villages on the metairial principle. Although the metayers are nominally engaged only by the season, and might be legally ejected at its end, in point of fact this is hardly ever done, and the villagers look

upon the lands they thus occupy as a permanent resource for themselves and their descendants. Of course they cannot give any legal transfer of their immunities, but they can share them with their children and relatives.

The peasant cultivators are a shiftless class, and seldom lay by anything in good seasons, and so are almost to a man in debt. Capitalists in the cities are always ready to lend their money at extravagant rates of interest, such as 2 to 3 per cent. a month. Such loans encumber the patrimony of the farmer with hopeless mortgages, and in the end the owner is forced to yield up his title, and become a *Sherik-el-Hawa*<sup>1</sup> (Partner of the Wind), where he and his ancestors were once proprietors. In this way, as individual capitalists favour certain villages, they gradually absorb all the property of the peasants, and the villagers become their metayers (in Arabic, *muzâri 'în*), and enjoy for their work a variable proportion of the produce. If the seed is furnished by the proprietor, the peasant usually gets but a fourth of the net yield.

In some parts of the country, as, for example, in Southern Palestine, and in a few other districts, the land is held in common by all the inhabitants of a village, and apportioned at stated times to the individual cultivators according to their ability to cultivate, their standard being the number and power of the cattle used for ploughing. Such lands are known as, *mushâ'ah*. The principles on which the arable soil is apportioned by lot are minutely set forth by James Neil, M.A., in a paper read January 20, 1890, before the Victoria Institute in London. They are in substance as follows:—the persons proposing to work the ground divide into groups, and the chief of each group draws a section of the land proportioned to the number of persons in his group. Each section is composed of lands of various fertility and qualities. These sections are again subdivided by measurement with an ox-goad, or a line called *habaleh*, the counterpart of the measuring line of Scripture. The farmers, in such regions as possess this custom, prefer this method of communistic division to holding in fee simple.

Until 1277 of the Mohammedan era, 28 years ago, all the lands outside cities and their environs, and Mount Lebanon, were held on the communal principle, and apportioned to the cultivators as above. At that date the Government introduced the *tatwîb*, and has steadily pressed upon the peasants the necessity of dividing the lands, and taking out *tâbu* deeds for them in severalty. In the Buqa', and around Damascus, and in many other parts of the country, there are no more lands held in common, and each proprietor holds his own real estate. But in Haurân, and in many of the outlying, and only partially organised districts, the land is still held in the old way by the communes. The Government, however, has recently laid its hand on the forest lands, and takes a tax of twenty paras the load on all wood cut for sale, but allows the peasants

<sup>1</sup> The *Sherik-el-Hawa* is a *tenant at will*. Yet such is the tendency of things to go on as they have begun, that such tenants usually remain in the ancestral house, and work the ancestral acres as if they were their own.

and proprietors to cut wood free for their own use. In the Buqa' this high-handed measure was adopted only three years since. In many of these districts the pasture lands are still held in common by the villagers.

The *Shekârah* is either a small portion of land in a garden or orchard, which the gardener cultivates for his own benefit, or the silkworms which a baker or other public servant rears from the mulberry trees of those who avail themselves of their services, or the portion of land set apart for the religious teacher, the carpenter, or the blacksmith and farrier.

Forest lands are often held in common, as also the bare goat pastures at the summits of the mountains, and in the neighbourhood of the villages. The fact that the higher mountains are pastures for goats, and that even the Government has not the right to replant them with forests, is a very serious one in its bearing on the rainfall and fertility of the country. The enlightened late Governor-General of Lebanon, Rustem Pacha, told the writer that, in the existing state of the Turkish law, it is quite impossible to prevent the herdsmen from pasturing their flocks on the higher mountains above the altitude of cultivation, and as the goats destroy all seedlings it is impossible to attempt to replant these districts with trees.

### 3.—*Crown Lands.*

There are large tracts of excellent arable soil, especially in the interior, which belong to the Government. Parts of these lands are settled, and in some cases the farmers are muzâri'in, or tenants of the Government, not liable to eviction, and competent to sell their tenant privileges, yet not owners in fee-simple of the land. Other tracts are not settled, but may be hired of the Government for farming purposes for a limited time, at a rental agreed upon by the authorities and the lessee. The general policy of the Government, however, is to sell these unoccupied lands as freeholds, or, in certain cases, like those of the Circassian immigrants, to give them as homesteads to such persons as the authorities may wish to provide for.

From all the produce of the farming lands of the empire a tithe is taken in kind. As, however, it would be a complicated and difficult process for the Government to collect these taxes directly, they are accustomed to let them out to tax-farmers (*multazamîn*), for a sum agreed upon by both parties. These *multazamîn* (who correspond to the *publicans* of the New Testament) having to indemnify themselves for their risk, resort to every form of intimidation and oppression to wrest from the poor producer much more than the tithe. As the Government supplies them with soldiers to assist them in the collection of the taxes, they are able to exercise a most effective and odious form of tyranny. As the crops cannot be measured until threshed out and winnowed in heaps on the threshing floors, the farmers are forced to leave their harvests exposed to the attacks of birds and insects, of rats and other vermin, and the depredation of thieves, and the damage of occasional showers, until the

multazim chooses to come and measure out the grain. Then he has the power (not *legal*, but none the less *real*) to quarter his horsemen and other animals without compensation on the poor villagers, who are glad to buy him off and get rid of him by paying two tenths or more.

In addition to the tithe there is a land-tax of from 20 to 60 paras the dunem (Turkish acre), according to the fertility of the soil.

#### 4.—*Awqâf, or Endowment Property.*

Land given to endow benevolent and educational institutions is free of Government tax. But buildings, on which rental is collected, even if on ground that is free from taxation, pay the usual *wîrku*, as in the cases of non-waqf property. Buildings used for convents, schools, and churches or mosques, may be exempted from the *wîrku*. The produce of endowment lands, however, is tithed as that of other lands.

Waqf-land is inalienable by sale. But it may be exchanged for other real property which is considered by the Court to be more advantageous to the institution. In this way the borders of a plot of waqf-ground may be rectified. Under certain circumstances portions of the public roads may be exchanged for private property. Here again the method of procedure may be illustrated by a deed of property belonging to the writer. This property is at the junction of the villages of 'Aleih and 'Ain-er-Rummâni in Lebanon. Adjoining it is a small plot of ground, in which grows an oak tree, held in great reverence by the Druzes. It is waqf-property belonging to the 'Aleih commune. The tree is called *Umm-esh-Sheratîf* (the mother of rags), because the people are in the habit of tying bits of rags to its lower branches on the occasion of the recovery of the sick, or the attainment of any special object. At the time of the acquisition of the property by the side of this tree, which may be two hundred years old, and is a fine feature of the landscape, there was an old road, a mere rocky bridle-path, which led up from the village of 'Ain-er-Rummâni to the tree, and past it to 'Aleih. This bridle-path cut off a corner of the property of the writer. As this path had ceased to be used as a road, owing to the making of a good carriage road a few feet away, and as it cut the property of the writer in two, he offered to the Government to make a good, well-graded path to the tree, in place of the portion of the old road which passed through his ground. The offer was accepted, and the exchange ratified in the following paragraphs endorsed on the deed. The first is a communication from the then Governor-General, Rustem Pacha, now Ottoman Ambassador to the Court of St. James :—

“To the Qaimaqâm of the district of Esh-Shûf.

“Honourable Governor,—Within is a petition from Dr. Post, in which he states that he has bought a plot of uncultivated ground from Ibrâhîm Haddâd and Ibrâhîm-el-Barûdi, for which he has a deed registered in the court of the district of esh-Shûf, and that there passes through it a portion of the old road, now impassable, owing to the construction of the new

carriage-road, which has destroyed the terminus of the old road. By our authority he has included this section of the old road within his wall, and has made at his own expense, from his own property, a road leading to the oak tree which belongs to the community, and he now asks that his exchange be endorsed on the deed of purchase, and inasmuch as it seemed proper that this should be done, and inasmuch as the transaction is a public benefit, owing to the useless state of the old road, and the usefulness of the new road which he has made at his own expense and in his own property, it was necessary to inform you, and to send the deed, in order that you might instruct the court to declare this exchange, and to legalise it in a proper way, that will prevent all complaint or lawsuit hereafter, and to return it to us. This was written on 17 Ramadân, 1293 (23 Ailûl, 1292)."

The note appended by the court is as follows :—

"Praise be to God Almighty !

"We have been honoured by reading your noble vizierial order, the copy of which is written above, and the purport of its contents has been duly attended to, and inasmuch as the right of dealing with the public highway is an appanage of the Imâm, who is our August and Mighty Master, the Sultan-Ibn-es-Sultân, the Puissant and Potent Sultan 'Abd-el-Hamid-Khân, the throne of whose lofty power may God Almighty preserve for ever, and of his honoured wakîls, such as our Governor Rustem Pacha, the noble Mutasarrif of Mt. Lebanon, and inasmuch as the order of the above-mentioned has been given that the public road which is included in the property of Dr. George Post, the American, as defined and registered within, a road leading to the oak tree, popularly known as Umm-esh-Sheraîf, a tree belonging to the waqf-property of the village of 'Aleih, be transferred to Dr. Post, and inasmuch as the aforesaid doctor has made a good road to the oak tree at his own expense, between the carriage-road and the circle around the afore-mentioned oak tree, as a compensation for the other road, and all is actually accomplished, and it has been found that the new road made at the expense and cost of the aforesaid doctor is better than the other, and easier for those passing over it, and that thus a public benefit has been conferred, therefore the transfer of the above-mentioned road is right in law, and regular, and no one has a right of way in the ground of the afore-mentioned doctor, which is described within, on account of this exchange of a road to lead to the oak tree belonging to the commune. For the above reason this document was issued by the Court of the district of esh-Shûf, and registered in accordance with the most honourable order above referred to, and with approved principles. Given on the 21 Ramadan, 1293 (27 Ailûl, 1292).

"Judge of the  
District of esh-Shûf.

President of the  
District of esh-Shûf."

### 5. *Forms of Rental of Land.*

Allusion has already been made to some of these, but it is convenient to group them all for the sake of comparison.

(1) *A rental for a fixed sum, irrespective of the yield.*—This never takes place in the case of farm lands, and seldom in that of orchards or gardens. It is almost wholly confined to house and shop property.

(2) *Partnerships in farm lands.*—The owner in some cases furnishes the seed, but if so he debits it in some form against the cultivator. The peasant ploughs, sows, reaps, threshes, winnows, and after the payment of the tithe takes from half to two-thirds or three-fourths of the net produce, according to the terms of the agreement, which again are conditional on the richness of the soil and the ease of cultivation.

In all cases the *mîreh* or ground-tax is paid by the proprietor. The houses of the peasants are owned by the proprietor, but occupied by the cultivator rent free.

(3) *Partnership in vineyards, olive, fig, or mulberry orchards.*—This is of two kinds.

(a) *Partnership by work.*—This is where the peasant undertakes to do all the work necessary in an established and producing orchard or fruit farm, for the fourth part of the net produce, the manure being furnished by the owner or hirer as agreed. In the case of mulberry orchards the peasant often undertakes to raise the silk-worms, cutting the leaves from the trees to feed them, and gathering the cocoons when they are finished, but not attending to the mulberry orchard. For this service he receives a fourth of the price of the cocoons. He is called *Sherik-el-Hawa*.

(b) *Partnership by paying the estimated price of the produce (Sharakat-el-Musâqâh).*—In this form of partnership a mulberry or olive orchard is appraised as to the probable yield of leaves or olives, and the cultivator pays the owner in advance a certain agreed sum on each load of leaves or measure of olives. When the crop is realised, there is a second appraisal of the actual yield, and if it prove greater than was expected, the tenant pays in proportion to the increase. If, on the other hand, the yield is less than was paid for the proprietor refunds the difference. In this form of partnership the cultivator is obliged to do the work, and to pay half the price of the manure used.

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## II.—AGRICULTURE.

### 1. *Measures of Land.*

There are few more perplexing topics of conversation with Arabs than those which relate to weights and measures. This arises from the diversity of standards in different places. The unit of measures of length, the *Dhira'*, the analogue of our *ell*, differs from two feet three inches to two

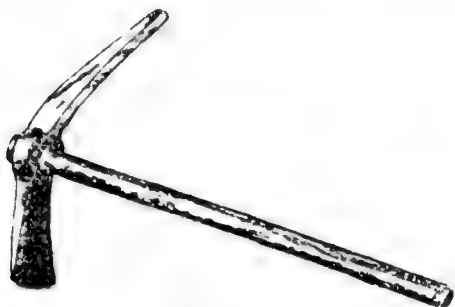
feet five and a half. The *Qasabah*, the analogue of our *rod*, *perch*, or *pole* is reckoned in Damascus, and those places which derive their usages from that capital, at seven and a half dhiras. In Egypt it was until recently twenty-four *qabdahs*, the *qabdah* being the measure of a man's fist with the thumb erect, making about six and a quarter inches. According to this standard the *qasabah* was about twelve and a half feet. According to some it was ten cubits, the cubit itself differing in length. The *qasabah* is said by some to be forty dhiras.

The *Feddân* is, roughly speaking, the amount of land which a yoke of oxen will plough in a day. The term *feddân* originally signified the bull, or the yoke of cattle, with which one ploughs, and corresponds to the *jugerum* and acre. But there is a great diversity of statement in regard to the extent of this measure. A Damascene informed the writer that it was 260 square *gasabehs*. Some even say 260 *qasabehs* square, which would amount to from five to six square miles, a statement palpably preposterous. Others say  $333\frac{1}{3}$  square *qasabahs*; others still 400 square *qasabahs*.

## 2. Agricultural Implements.

These are the *pick* (*ma'wal*), the *hoe* (*majrafeh*), the *spade* (*refsh*), the *rake* (*shaukah*), an implement seldom used by the Arabs, the *hatchet* (*fâs*), the *axe* (*farrâ'ah*), the *pruning hook*, (*manjal*), the *knife* (*sikkîn*), the *plough* (*mihrath*), the *threshing-drag* (*nauraj*, in popular use *mauraj*), the *winnowing-fork* (*midhrâyeh*), the *basket* (*sabûrîyeh*), the *large basket* (*zen-bîleh*), the *sledge* (*mihaddah*), the *crowbar* (*mukhl*), the *wedge* (*isfîn*).

The *pick* is a mattock with one short blade, six to eight inches long, and about two inches broad at the tip, which is somewhat sharp, so that the farmer can cut up roots and small shrubs with it. The other blade is longer and stouter, and about three quarters of an inch broad at tip, and usually furnished with two slightly prominent teeth. This blade is used to pick the soil, pry out stones, and even to break friable stones and rocks. The handle of the pick is usually about two feet six inches long.



SIDE VIEW OF THE PICK. (المغوال)

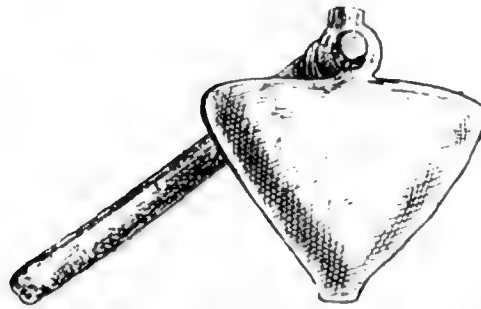


END VIEW.

Both blades are bent at an angle to the handle, suited to the habits of the Orientals, but seeming inconvenient to the Occidental.

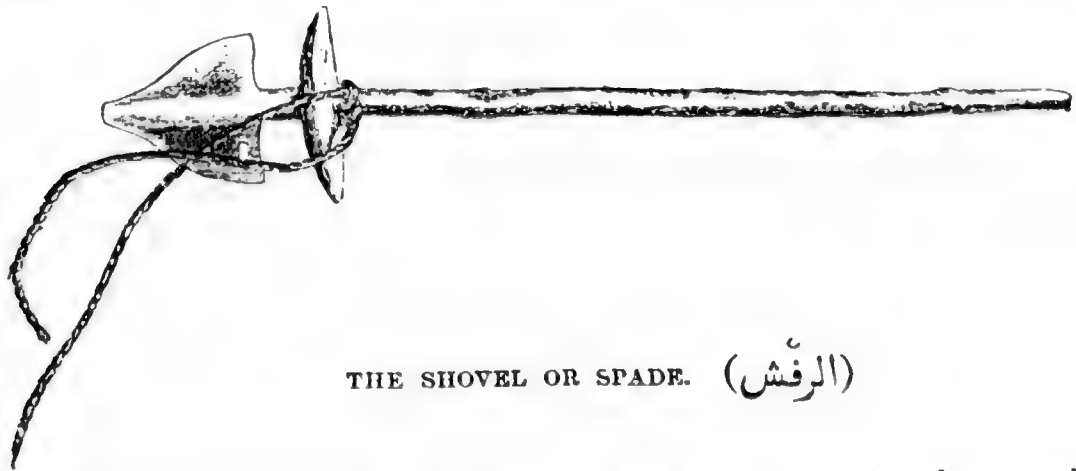
The *hoe* is triangular in shape, with rounded angles at the base, and a rectangular truncate tip: the handle is inserted near the base, in a

projection with a hammer-like tip. Sometimes the tip of the hoe is rounded.



HOE. (المَجْرَفَة)

The *spade* is rather a shovel, triangular in shape like the hoe, but with sharp basal angles, and a somewhat tapering truncate tip. The handle varies. Sometimes it is made with a crossbar at the upper end. Sometimes it is, as in the figure, a simple cylindrical stick, with a crossbar (*madrabeh*) at the bottom to facilitate pressure with the foot in digging.

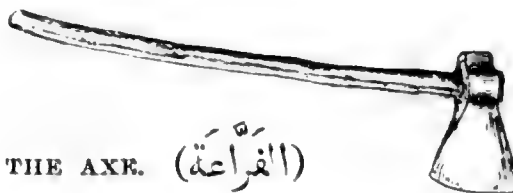


THE SHOVEL OR SPADE. (الرَّفْش)

When soil is to be removed or turned over with this shovel, a rope is usually fastened to the lower end of the handle, and a labourer on each side takes hold of one end of the rope, and they pull the clod of earth to the desired position. Thus a shovel requires three labourers: one to thrust the blade into the soil, and two to pull the clod. It is impossible to convince the people of this country that this is not the most economical and easy way to do the work required.

The *rake* is rather a European innovation, and little used by the natives, except where they are in Frank employ.

The *hatchet* is a poor and clumsy blade, oblong in shape, and badly tempered.



THE AXE. (الْفَرَاة)

The *axe* is a larger form of the same, with an oblong blade, usually of iron or untempered steel, the edge of which turns in using, and is

quite incapable of doing woodman's work according to western ideas. The helve of both axe and hatchet is usually straight.

The *pruning hook* is an iron instrument, with a blade of a semilunar shape, about ten inches long, and, like all iron implements in the East,



THE PRUNING HOOK.

(المنجل)

poorly if at all tempered. The handle is made hollow, to allow of a wooden helve if necessary.

The *knife* has two forms. One is a clasp knife of the rudest construction, falcate in shape, with a wooden or bone handle. The other is a sheath knife, usually about eight inches long, linear-lance shaped, and



THE SHEATH KNIFE AND SHEATH.



(الغمد السكّني)

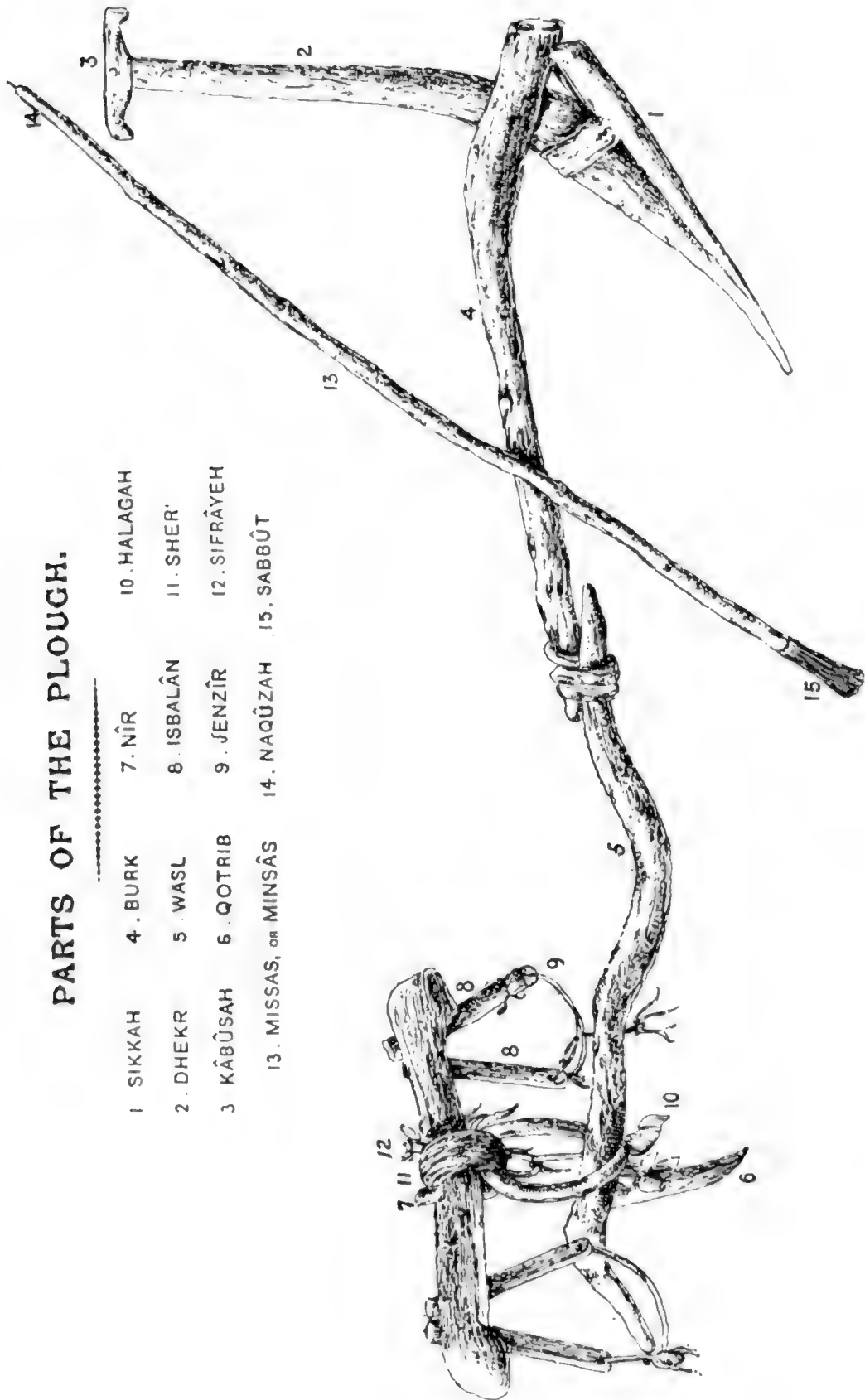
with one cutting edge. It is carried in a wooden sheath, stuck in the belt.

The *plough* is an exceedingly primitive implement. It consists of the following parts : (1) The share (*sikkah*), a conical, very acuminate shoe of iron, with no flaring portion as in our ploughshares, made hollow to receive the point of the (2) shank (*dhakr*), which is a piece of tough wood, usually oak, about two feet six inches long, bent forward below its middle, and sharpened to go into the *sikkah*. (3) The handle (*kábûsah*), a crossbar of the same tough wood, into which the shank is morticed, and fastened by a wooden pin. This handle is of a convenient height, to be held by the hand of the driver below his waist. (4) The pole (*bûrk*), which is a hump-backed piece of the same tough wood, morticed at its joint with the shank. To lengthen this out in the proper shape there is attached by a cord to its free extremity (5) the (*wasl*), which is a pot-bellied pole, with a blunt end deflexed about six inches from the tip at an angle of about 130 degrees, to get it out of the way of the muzzles of the oxen. From two to three inches behind this angle is morticed into the *wasl*, at an angle of about 75 degrees (6) a pin (*qotrib*), about six inches long, to receive the ring of the yoke and prevent it from slipping.

(7) The yoke (*nîr*) is composed of a horizontal bar of wood, with knobbed extremities, but with no hollowed-out portion to receive the nape of the neck of the ox. In place of the *bow*, two pins (8) (*isbalân*) are let into holes in the *nîr*, at angle of about 30 degrees to each other, their upper extremities being about 3 inches apart, to receive the nape of the neck. When adjusted, these are fastened by a leather thong, or a chain (9) (*jenzîr*). (10) The ring (*haluqah*) is a tough branch bent in a rude elliptical form. It is tied to the *nîr* by (11) a leather thong (*sher'*), between (12) two pintles (*sifrâyah*), which keeps it in place.

# PARTS OF THE PLOUGH.

1 SIKKAH	4. BURK	7. NÎR	10. HALAGAH
2. DHEKR	5. WASL	8. ISBALÂN	11. SHER'
3 KÂBÛSAH	6. QOTRIB	9. JENZÎR	12. SIFRÂYEYEH
13. MISSAS, OR MINSÂS	14. NAQÛZAH	15. SABBÛT	



The goad (*missás*, or *minsás*, 13) is a rod of stiff wood, about 7 to 8 feet long, with a sharp point (*naqâzah*, 14) at one end, with which to prod the cattle, and a small shovel-shaped shoe (*sabbât*, 15) at the other, with which to clean the share of its clods.

Cows, steers, or bulls are most commonly used for ploughing. Sometimes an ox and an ass are yoked together; occasionally an ass and a camel are yoked fellows. In that case the disparity in strength and height is corrected by a difference in the length of the two sides of the yoke. Buffaloes, mules, and horses are occasionally used in ploughing.

The *nauraj*, or *threshing drag* (corrupted in common speech into *mauraj*), is of the shape of our ordinary stone-drag, the lower surface being beset with flints or chips of basalt, which are let into holes in the wood, and cut the straw into bits while threshing out the grain. The driver stands on the drag, or sometimes lies out on it at full length, and is often seen asleep, while the horse or cow lazily pull the drag round and round the central heap. The cattle are sometimes muzzled, but often allowed to help themselves as they pursue their weary task. The Mosaic law forbade the use of the muzzle.

In northern Syria, in place of the *nauraj*, the *hîlân* is the implement used in threshing. It consists of a stout oaken frame, into the sides of

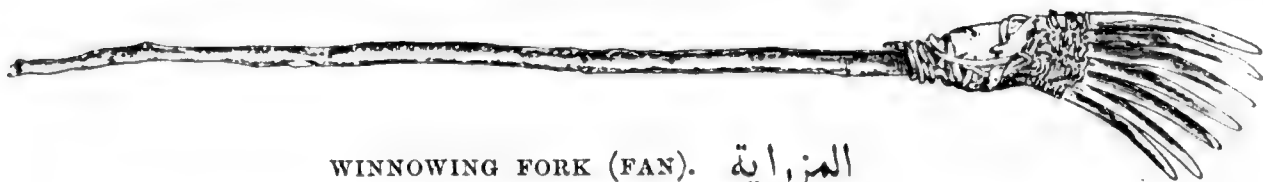


A threshing floor, with a heap of wheat straw in the centre. A part of this has been spread out on the threshing floor and is being cut up and threshed out by the *hîlân*. The driver sits on the rude chair, to add his weight to that of the implement. In the distance are other heaps of straw on their threshing floors.

which are let two axles, on which are fastened circular plates of iron, which are so arranged on each axle as to enter the inter-spaces of those on the opposite axle, and so cut the straw into bits about an inch or two in length. A rude chair is fastened to the frame, and the driver sits on this while threshing. This implement seems to foreigners more efficient and rational than the nauraj, yet those whose ancestors have used the latter do not abandon it for the former.

The harness consists of a collar (*kiddanîyah*) and traces (*jarrârât*).

The winnowing-fork (*midhrâyah*) consists of a handle (*'asâyah*) of wood, with two or more natural prongs, to which two or three more are tied by leather thongs.



WINNOWING FORK (FAN). المزراية

The sheaves of grain are piled in the centre of the threshing floor in such a way as to leave a circular path about 8 feet wide around the heap. A number of the sheaves are undone and tossed loosely around on this clear space, and the drag driven around until all the grain is shelled out, and the straw (*qosh*) cut to the requisite fineness, when it is called *tibn*. The mixed grain, chaff and *tibn* are then thrown on one side, and a new supply of sheaves spread out. When all the sheaves have been threshed, the winnowing commences; the winnower stands with his side to windward and tosses a fork full of the mixed grain and straw high into the air; the chaff is carried to a distance of 10 or 15 feet or more; the *tibn* is carried to a shorter distance and falls by itself, while the heavy grain and the joints of the stems (*qasal*) falls near the point from which it was thrown into the air. By continued repetition of this process the three sorts of produce of the threshing floor are well sorted, the grain and *tibn* for use; the finer "chaff, the wind driveth away."

Much earth and many small pebbles are found among the grain; these are afterwards separated in the following way:—A wooden tray, about 2 feet 6 inches broad, with a rim about an inch and a-half high around three-quarters of its circumference, is held in the two hands of the operator, a pile of grain, with its impurities, is placed on the tray, which is then worked up and down by the operator with a jerking motion, so as to toss the grain a few inches each time into the air, while giving it at the same time a little forward impulse away from his body toward the free border of the tray. The wheat being lighter than the pebbles and the earth, gradually separates from them and falls in driblets over the edge of the tray, while the stones gravitate toward the rim of the tray, and are then thrown aside; the process, which involves much skill and experience, is a very effective one.

These threshing floors, with their varied and picturesque industries

form a very prominent feature of the landscape in the neighbourhood of the villages.

There are many plains of great fertility and of considerable extent, as those of Coëlesyria, Philistia, Jericho, Esdraëlon, 'Akkar, Hems, and Haurân; but a large part of the country is mountainous, and the soil must be laboriously worked over with the mattock and the hoe, and the stones picked out, before it is ready for the plough. This process is called *naqb*. It consists in turning over the soil, prying out the rocks, and removing the stones from the loam, then building terrace walls of rubble, and levelling off the terrace (*jell*). Such terraces are from a few feet to many yards in width; the narrower ones are adapted to trees, the wider to grain.

It is not customary to manure soil for grain crops; but fertilizers are freely used for trees, especially the mulberry, orange, lemon, and other fruit trees.

The time for ploughing varies according to the situation and the crop. On the sub-Alpine slopes of Lebanon the ground is irrigated by the snow-water, which pours down in numerous rills from the great drifts on the higher peaks; these fields, from 5,000 to 6,000 feet above the sea level, are ploughed in September and October, and sown with wheat and barley. The grain sprouts, and the plants, after attaining a certain height, are overlaid with snow, as with winter wheat in colder climates. When the snow melts in the later spring, the plants start up with a vigorous growth and soon mature their grain.

On the lower levels, where snow seldom or never falls, the ground is ploughed after the first rains of autumn, and the grain grows steadily until the harvest, which varies in time from March and April in the Jordan Valley, to May, June, and July on the uplands. For the summer crops, as *sorghums*, *sesame*, and *tobacco*, the ground is ploughed in spring.

The mulberry, fig, and olive orchards are ploughed in the spring, when the leaves are starting, and sometimes again when the first crop of leaves has been stripped off and the second is sprouting, then again in the autumn after the first rains. At the time of the latter ploughing the manure is usually worked into the soil.

The vineyards are ploughed in the latter days of winter, and early spring, before the leaves sprout, while the dry stalks of the vines lie along the ground to all appearance dead.

The grain fields of the mountains are ploughed and sown every year, and seldom is any attention paid to the rotation of the crops. In the great grain fields of Coëlesyria, Damascus, Haurân, and other parts of the country, a portion of the land lies fallow alternate years, or the crops are rotated.

The ground is usually seeded before being broken by the plough, and the seed ploughed in. If the ground be fallow it is broken by the plough, then seeded, and the seed ploughed in.

In Southern Palestine a kind of funnel is attached to the handle of

the plough, and seed placed in this funnel is dropped into the furrow as the plough moves along.

So far as the writer's knowledge extends, the people have no religious ceremonies connected with ploughing, sowing, or reaping.

*Irrigation* is practised in various ways. In the gardens and orchards bordering large rivers, the water is often raised by immense wheels, turned by the current of the river. These are called *Na'ûrahs*. The *Shadûf* of Egypt is not, so far as the observation of the writer has extended, used in Syria and Palestine. Aqueducts, usually open, convey river water to the gardens and fields, where it is distributed by ditches and furrows, the latter being opened or closed by the hoe or the foot. Where water is brought in pipes, which are usually made of clay, it is raised to a head by means of upright shafts, which act on the inverted syphon principle, and give force enough for fountain jets of considerable height.

The rice fields in the neighbourhood of Marash are flooded with water, as are also some of the vegetable gardens, where aquatic plants like the *Colocasia esculenta* (*qolqâs*) are cultivated.

Irrigation wells are found in many parts of the country, the water being raised by means of a bucket-wheel (*na'ûrah*), turned by a horse, mule, or horned cattle. The water is usually conveyed to the different parts of the garden by conduits raised on high stone walls, or colonnades and arches.

Subsoil drainage is not understood, and indeed is seldom called for. Recently, however, a large tract of land has been reclaimed from the Hûleh by the Sultan, who owns it as a private property, and cultivates it by means of muzârî'in. There are considerable marshy tracts in various parts of the land, which await the sleeping enterprise of the country to become fruitful fields and orchards. Such are the marshes of the Kishon, of Coesylria, of Antioch, Damascus, Alexandretta and others.

*Gleaning* is no longer a recognised industry. The cultivators strip the fields and trees, and leave not enough for a barnyard fowl or a sparrow to glean. They pull off the branches of the very shade trees by their own houses to feed the leaves to their cattle. There is, however, one usage which somewhat resembles gleaning. It grows out of the habit of the fig-tree. The fig harvest commences in July or August, and the figs ripen successively during two or three months. It is customary to have the trees watched by a *Nâtûr* during the period of fruit-bearing. But after the Feast of the Cross, which occurs in September, the *Nâtûr* is drawn off, and passers-by may thereafter pluck the fruit with impunity. If there be fruit on the trees, as generally happens, the owner will not fail to visit them, and glean them himself to the very last fig, but he is not surprised to find himself anticipated by other gleaners, who cannot, however, take all the fruit at once, as it only ripens a few figs at a time, from day to day.

The principal *Forage Plants* of the country, beside the numerous native grasses and leguminous herbs, are :—

Lucerne or Purple Medick. (*Qutât, Duḥraiḡeh*) *Medicago sativa*, L.  
 Vetch. (*Bâqiyah*) *Vicia sativa*, L.  
 Vetch. (*Kirsenneh*) *Vicia Ervilia*, L.  
 Alexandrian Clover. (*Bersîm*) *Trifolium Alexandrinum*, L.  
 Sainfoin. *Onobrychis sativa*, L.  
 Barley. (When cultivated as a forage plant, *qosîleh*) *Hordeum vulgare*, L.

The principal cultivated *Seeds and Grains* used as food are :—

Fitches. (*Habbat-el-barakah, El-habbat-es-saudâ*) *Nigella sativa*, L.  
 Lupine. (*Tûrmûs*) *Lupinus Termis*, Forsk.  
 Fenugreek. (*Hîlbah*) *Trigonella Fænum-Græcum*, L.  
 Chick Pea. (*Hûmmûs*) *Cicer arietinum*, L.  
 Horse Bean. (*Fâl*) *Vicia Faba*, L., or *Faba vulgaris*, L.  
 Lentiles. (*Adis*) *Ervum Lens*, L.  
 Peas. (*Bizellah ; Bishleh*) *Pisum sativum*, L.  
 Mâsh. A variety of *Vigna Nilotica*, L. A seed of an olive-green colour, a little larger than a hempseed.  
 String Bean. (*Lubiyah-beledîyeh*) *Vigna sinensis*, L.  
 Kidney Bean. (*Lubiyah-ifranjîyah*) *Phaseolus vulgaris*, L.  
 „ (*Lubiyah-quşas*) Perhaps a variety of *Phaseolus multiflorus*.

Carob. St. John's Bread. (*Kharrâb*) *Ceratonîa Siliqua*, L. The parenchyma of the pods is the part used as food. It is principally made into dîbs, a sort of inspissated syrup.

Sesame. (*Simsûm*) *Sesamum Indicum*, L.  
 Barley. (*Sha'îr*) *Hordeum distichum*, L., and *H. vulgare*, L.  
 Oats. (*Sheifûn, Shufûn*) *Avena sativa*, L. Sparingly cultivated in northern districts.

Wheat. (*Qomḡ Hintah*) *Triticum vulgare*, L.  
 Sorghum. (*Durrah beida*) *Sorghum annuum*, Pers.  
 Maize. (*Durrah sofrâ*) *Zea Mays*, L.  
 Millet. (*Dukhn*) *Panicum miliaceum*, L.  
 Rice. (*Arizz, Rûz*) *Oryza sativa*, L.

The principal *Vegetables* are :—

Pepperwort. (*Reshâd*) *Lepidium sativum*, L.  
 Cresses. (*Jerjâr, Qurrah, Reshâd*) *Nasturtium officinale*, L.  
 Cabbage. (*Melfâf*) *Brassica oleracea*, L.  
 Cauliflower. (*Qunnabîṭ, Qarnabîd*) *Brassica oleracea*, L.  
 Turnip. (*Lift, Suljûm*) *Brassica rapa*, L.  
 Radish. (*Fîjl*) *Raphanus vulgaris*, L.  
 Caper. (*Kabar*) *Capparis spinosa*, L.  
 Purslane. (*Boql*) *Portulaca oleracea*, L.  
 String Bean. (*Lubiyah*) *Vigna sinensis*, L.  
 Kidney Bean. (*Lubiyah-ifranjîyah*) *Phaseolus vulgaris*, L.  
 Kidney Bean (variety). (*Lubiyat-quşâs*) *P. multiflorus*.

- Horse Bean. (*Fâl*) *Faba vulgaris*, L.  
 Peas. (*Bizellah, Bishleh*) *Pisum sativum*, L.  
 Cucumbers. (*Khîyar*) *Cucumis sativus*, L.  
 Muqti. (*Muqti*) *Cucumis Chate*, L.  
 Squash. (*Kâsa*) *Cucurbita Pepo*, L.  
 Pumpkins. (*Jelünt*) „ *maxima*, Duch.  
 Parsley. (*Buqdaunis*) *Petroselinum sativum*, L.  
 Carrots. (*Jezar*) *Daucus carota*, L.  
 Lettuce. (*Khus*) *Lactuca sativa*, L.  
 Turmeric. (*Zu'farân*) *Carthamus tinctorius*, L. Used for tinging rice in cooking.  
 Tomatoes. (*Banadora*) *Lycopersicum vulgare*, L.  
 Potato. (*Baṭaṭa*) *Solanum tuberosum*, L.  
 Egg-plant. (*Beitinjân* or *Badhinjân*) *Solanum melongena*, L.  
 Spinach. (*Sbânikh*) *Spinacea oleracea*, L.  
 Beets. (*Shemandâr*) *Beta vulgaris*, L.  
 Colocasia. (*Qolqâs*) *Colocasia esculenta*, Schott.  
 Onions. (*Başal*) *Allium cepa*, L.  
 Garlic. (*Tâm*) *Allium sativum*, L.  
 Asparagus. (*Halyân*) *Asparagus acutifolius*, L.

The *Fruits* are :—

Sweet Sop (*Shajarat el Qashṭa*.) *Anona squamosa*, L., is sparingly cultivated.

Grapes. (*ʿinab*) *Vitis vinifera*, L. There are very numerous varieties—from the Zante Currant to berries as large and as firm as a Lady Apple. They are of all colours from light green to black.

Oranges. (*Burdiqân, Bartughâl*) *Citrus aurantium*, L.

Bitter Orange—Seville Orange. (*Naring, Kubbeid, Abu-Sufeir*) *C. Bigarada*, L.

Mandarin Orange. (*Yusuf Effendi*) *C. Madarensis*, L.

Lemon. (*Leimân Hamîd, Leimân Malîh, Leimân Marâkabi*) *C. Limonum*, Risso.

Sweet Lemon. (*Leimân Helu*) *C. Limonum*, var *dulcis*.

Citron. (*Kibbâd*) *C. medica*, Risso.

Jujube Berries. (*ʿennâb*) *Zizyphus vulgaris*, L.

Nabq. Christ-Thorn. (*Nabq, Sidr*) *Z. Spina Christi*, L.

Cherry. (*Karaz*) *Cerasus avium*, L. Cultivated from Hems northward.

Plum. (*Khaukh*) *Prunus domestica*, L. Many fine varieties are cultivated in Syria.

Cerasia. (*Qarâsiyah*) *Prunus Cerasia*, Bl. A variety similar to the damson plum of our orchards.

Jenerik or Jarink. (*Jenârik* or *Jarink*) A plum, in shape like a cherry, as large as a walnut, but with a plum stone.

Blackberry. (*ʿulleiq*) *Rubus cæsius*, L., *R. tomentosus*, Borekh, and *R. discolor*, Nees.

Strawberry. (*Kubâsh*) *Fragaria vesca*, L.

Pear. (*Ijjâs*, vulgo *Najâs*) *Pyrus communis*, L. The wild Syrian pear, *P. Syriaca*, Boiss, produces small, acerb, almost inedible fruits.

Apple. (*Tiffâh*) *Malus communis*, Desf., is barely found in the north of Syria, but many poor varieties are in cultivation.

Quince. (*Sepherjel*) *Cydonia vulgaris*, Pers. Several excellent varieties are cultivated.

Apricots. (*Mishmish*) *Armeniaca vulgaris*, L. Several fine varieties are cultivated, among them the *Lauzi*, the *Kuleibi*, and the *Fârisi*.

Peaches. (*Derraqn*) *Persica vulgaris*, L. The peaches of Syria are inferior.

Nectarines are cultivated in Damascus.

Service Berries. (*Makhlîs*, *Mahrîs*) *Sorbus trilobata*, Labill.

Medlar. *Mespilus Germanica*, L. Cultivated in Northern Syria.

Hawthorn Berries. (*Za'râr*) *Cratægus Azarolus*, L. Of this there are red- and yellow-fruited varieties. The fruit is as large as a small crab-apple.

Japanese Medlars. (*Enchidinia*) *Photinia Japonica*, are sparingly cultivated.

Wild Gooseberry. *Ribes Orientale*, Poir, grows wild in Higher Lebanon and Anti-Lebanon.

Indian Fig. (*Subbeir*) *Opuntia Ficus-Indica*, Haw.

Myrtle Berries. (*Hab-el-Aâs*, *Hanbelâs*) *Myrtus communis*, L.

Pomegranates. (*Rummân*) *Punica granatum*, L.

Cornels. *Cornus Mas*, L. In the woods of Northern Syria.

Persimmons of a large size are cultivated in Northern Syria.

White Mulberries. (*Tât*) *Morus alba*, L. Cultivated for silk worms.

Purple Mulberries (*Tut Shâmi*) *Morus nigra*, L. A delicious fruit.

Figs. (*Tîn*) *Ficus carica*, L. Of the fig numerous varieties are cultivated.

Sycamore Figs. (*Jummaizi*) *Ficus Sycomorus*, L. A poor fruit.

Olives. (*Zeitân*) *Olæa Europæa*, L.

Bananas. (*Mauz*) *Musa sapientium*.

Dates. (*Belh*, *Tamar*) *Phenix dactylifera*, L. Several varieties are cultivated. The pressed, dried fruit is called *Qutah*.

The *Nuts* are :—

Pistachio. (*Fistug*) *Pistacia vera*, L.

Almonds. (*Lauz*) *Amygdalus communis*, L.

Walnuts. (*Jauz*) *Juglans regia*, L.

Filberts. (*Binduq*) *Corylus avellana*, L.

Beechnuts. *Fagus sylvatica*, L. In Amanus.

The *Melons* are :—

Water Melon. (*Battîkh akhdar* ; *Jebas*) *Cucumis sativus*, L.

Musk Melon. (*Battîkh asfar*) *Cucumis citrullus*, L.

The *Medicinal Plants* are :—

Poppy. (*Khishkkhâsh*) *Papaver somniferum*, L. It is cultivated in Syria for its heads, out of which a sedative decoction is made. Opium is not produced in Syria and Palestine.

Mustard. (*Khardal*) *Sinapis alba*, L. = *Khardal abiad*. *Sinapis arvensis*, L. = *Khardal barri*.

Marsh Mallow. (*Khîtmîyeh*) *Althœa officinalis*, L.

Round-leaved Mallow. (*Khubbaizî*) *Malva rotundifolia*, L.

Violet. (*Benefsej*) *Viola odorata*, L.

Liquorice. (*Urj-es-Sâs*) *Glycyrrhiza glabra*, L.

Senna. (*Senâ-mekki*) *Cassia obovata*, Collad.

(*Senâ-sa'îdî*) *C. lanceolata*, Forsk.

Colocynth. (*Hondol*) *Citrullus Colocynthis*, L.

Elaterium. (*Qiththâ-el-Himâr*) *Ecballium Elaterium*, L.

Scammony. (*Sogmunîyeh, Mahmudiyyeh*) *Convolvulus Scammonia*, L.

Henbane, Hyoscyamus. (*Benj*) *Hyoscyamus aureus*.

Stramonium. (*Barsh*) *Datura Stramonium*, L.

Tobacco. (*Tebagh, Titûn*) *Nicotiana Tabacum*, L.

Castor Oil Plant. (*Kharwa*) *Ricinus communis*, L.

Hemp. (*Qinnab*) *Cannabis sativa*, L. The extract *Cannabis Indica* is known under the name of *Hashish*.

Nutgalls. (*'Ofs*) Galls from various oaks.

Squills. (*Basl el Fâr.*) *Urginea Scilla*.

The *Aromatics* are :—

Rose. (*Ward*) *Rosa Damascena*, L. Attar of Rose is distilled from it.

Cummin. (*Kammân*) *Cuminum Cyminum*, L.

Caraway. (*Karâwiyah*) *Carum carui*, L.

Dill. (*Shibith*) *Anethum graveolens*, L.

Fennel. (*Shumâr, Shumr*) *Fœniculum piperitum*, DC.

Origanum. (*Za'tar*) *Origanum Maru*, L. This may well be the Hyssop of Scripture.

Mint. (*Na'na'*) *Mentha sativa*, L.

Thyme. (*Za'tar*) *Thymus Syriacus*, Boiss.

Summer Savory. (*Za'tar*) *Satureia hortensis*, L.

*S. cuneifolia*, Ten.

The chief *Industrial Plants* are :—

Soapwort. (*Shersh-Halâwi*) *Saponaria officinalis*, L.

Cotton. (*Qutn*) *Gossypium herbaceum*, L.

Flax. (*Kittân*) *Linum usitatissimum*, L.

Persian Seeds. *Rhammus petiolaris*, Boiss. Used as a dye.

Butm Seeds. *Pistacia mutica*, F. and M. The seeds are used in tanning.

Sumach. (*Simmâq*) *Rhus Coriaria*, L.

Indigo. (*Nîl, Şabâgh*) *Indigofera argentea*, L.

Madder. (*Furweh*) *Rubia tinctoria*, L.

Soda Plant. (*Ushnân, Hashishat-el-Qali*) *Salicornia fruticosa*, L.

Hemp. (*Qinnab*) *Cannabis sativa*, L.

Valonia Oak. *Quercus Ægilops*, L.

Sugar Cane. (*Qoşab muş*) *Saccharum officinarum*, L.

The principal *Trees and Shrubs used as timber and fuel* are :—

Smoke Plant. *Rhus Cotinus*, L. *Fuel*.

Tanner's Sumach. (*Simmâq*) *Rh. Coriaria*, L. Seeds for *tanning*.  
Wood for *fuel*.

*Rh. oxyacanthoides*, Dun *Fuel*.

Terebinth. (*Butm.*) *Pistacia Terebinthus*, L., and its variety *Pales-tina*. *Fuel*.

Muticous Terebinth. (*Butm*) *P. mutica*, F. et M. The typical tree of the Syrian desert. The Arabs gather the small nuts and sell them for tanning purposes. Wood used as fuel.

Mastich. (*Mastîk*) *P. lentiscus*, L. The inspissated sap used as a *chewing gum*, the wood as *fuel*.

Bân. (*Bân*) *Moringa aptera*, Gært. *Fuel*.

Maple. (*Qaiğôb*) *Acer Hyrcanum*, F. et M. *Fuel*.

„ „ *A. Monspessulanum*, L. *Fuel*.

„ „ *A. Syriacum*, Boiss. *Fuel*.

Bladder Nut. *Staphylea pinnata*, L. *Fuel*.

Zaqqûm. (*Zaqqâm*) *Balanites Ægyptiaca*, Del. *Fuel*. A kind of balsam is prepared from the fruit, and sold at Jericho as *Balm of Gilead*.

Pride of India. (*Zinzilukht*) *Melia Azedarach*, L. The favourite shade-tree of Syria. Used for *house-timbers* and *fuel*.

Jujube. (*Ennâb*) *Zizyphus vulgaris*, Lam. The berries are eaten, and the wood is used as *fuel*.

Christ-Thorn. (*Nabq, Sidr*) *Zizyphus Spina-Christi*, L. *Fuel*. The fruit is *edible*, but astringent.

Lotus. (*Nabq*) *Zizyphus Lotus*, L. *Fuel*.

Buckthorn. (*Zifrîn*) *Rhamnus alaternus*, L. *Fuel*. Also an ornamental shrub.

Carob. (*Kharnâb, Kharrâb*) *Ceratonia Siliqua*, L. A fine *shade-tree*. Also cultivated for its *Pods* (St. John's Bread, "the husks that the swine did eat"), out of which a sort of syrup is made. Also used for *building purposes*, and *fuel*.

Red Bud. Judas Tree. (*Zemzarîq*) *Cercis Siliquastrum*, L. *Fuel*.

Shittim. (*Sünt*) *Acacia Nilotica*, Del. A durable wood, used for *building purposes*, and *fuel*.

Shittim. (*Anbar*) *A. Farnesiana*, Willd. *Fuel*. The sweet-scented flowers are greatly prized by the Arabs.

Seyal. (*Seyyâl*) *A. tortilis*, Hayne, and *A. Seyyal*, Del. Largely used as *fuel*, and in making *charcoal*, which is sold in Egypt.

Almond. (*Lauz*) *Amygdalus spartioides*, Spach. *Fuel*

„ „ *A. communis*, L. Used in *building*, and for *fuel*.

The green almonds (*Qur'aun el-lauz*) are prized by the natives as a delicacy, and the ripe ones are a considerable product.

Almond. (*Lauz*) *A. Orientalis*, Ait., and *A. Lycioides* Spach., are used only as fuel.

Cherry. (*Karaz*) *Cerasus avium*, L. The fruit is sparingly used in Northern Syria. The wood is valued *for the arts*, and as *fuel*.

Cherry. (*Karaz*) *C. microcarpa*, C. A. Mey. *Fuel*.

" (*Mahleb*) *C. Mahaleb*, L. *Fuel*.

Plum. (*Khaukh*) *Prunus spinosa*, L. *Fuel*.

" " *P. monticola*, C. Koch. *Fuel*.

" (*Khaukh ed-dibb*; *Brqrûq*) *P. ursina*, Ky. The sour fruit is nevertheless *eatable*. The wood makes good *fuel*.

Plum (*Qarâsia*) *P. Cerasia*, Bl. The fruit is a delicious sort of Damson Plum. The wood is good *fuel*.

Plum. (*Khaukh*) *P. domestica*, L. Many varieties are cultivated for *fruit*. All make good *fuel* and *timber*.

Pear. (*Ijjâs*; *Najâs*) *Pyrus Syriaca*, Boiss. *Fuel*.

" " *P. Boveana*, Dec. *Fuel*.

Apple. (*Tiffâh*) *Malus communis*, Delf. Cultivated for *fruit*. Its wood is good *fuel*.

Service Tree. (*Makhlîs*; *Mahrîs*) *Sorbus trilobata*, Labill. The small fruit is *eaten*. The wood is good *fuel*.

Service Tree. (*Makhlîs*; *Mahrîs*) *S. Aria*, Crantz. *Fuel*.

" " *S. torminalis*, L. *Fuel*.

Medlar. *Mespilus Germanicus*, L. The fruit is *edible*, and the wood good *fuel*.

Hawthorn. (*Za'râr*) *Crataegus Orientalis*, Pall. *Fuel*.

*C. Azarolus*, L. The fruits are edible, and make a delicious jelly. The wood is excellent *fuel*.

*C. Sinaica*, Boiss. *Fuel*.

*C. monogyna*, Willd. A tree with *beautiful crimson inedible fruits*, as large as a pea. The wood is good *fuel*.

Cotoneaster. *Cotoneaster pyracantha*, L. A tree with *beautiful crimson inedible fruits*, resembling those of the American mountain ash (*Pyrus Americana*). Wood makes good *fuel*.

*C. nummularia*, F. et M. *Fuel*.

Strawberry Tree. (*Qotlib*) *Arbutus Uedo*, L. The berries are *edible*. The wood is a poor *fuel*.

Arbutus. (*Qotlib*) *Arbutus Andrachne*, L. A curious tree or shrub with a red trunk and branches, the outer bark scaling off and leaving the wood bare. *Fuel*.

Bird Lime Tree. (*Dibq*; *Bumbâr*) *Cordia Myxa*, L. *Bird Lime* is made from the juice of the berries. The wood is a poor *fuel*.

Storax. (*Hauz*, *Abhar*; *Libnah*) *Styrax officinale*, L. *Fuel*. The resin is the officinal Storax.

Olive. (*Zeitûn*) *Olea Europæa*, L. The *berries* are one of the chief

products of Syria and Palestine. The wood is extensively used for *articles of vertu*, and is *excellent fuel*.

Phillyrea. Phillyrea media, L. *Fuel*.

Fontanesia. Fontanesia phillyreoides, Lab. *Fuel*.

Ash. (*Dardâr*) Fraxinus Ornus, L. A fine *timber tree*; also highly valued for *fuel*.

F. oxyphylla, M. B. *Building purposes and fuel*.

Silver Berry Tree. Eleagnus Hortensis, M. B. *Fuel. Hedges*.

Laurel. (*Ghâr*) Laurus nobilis, L. *Fuel*.

Castor Oil. (*Kharwâ*) Ricinus communis, L. The seeds furnish an oil which is used for *lighting purposes*, as well as a *cathartic*. The wood makes *poor fuel*.

Box. Buxus longifolia, Boiss. Wood used *in the arts*; also as *fuel*.

Fig. (*Tîn*) Ficus Carica, L. The *fruit* is a main reliance of the people. The leaves are *fodder* for cattle. The wood is a *poor fuel*.

Sycamore. (*Jummaiz*) Ficus Sycomorus, L. A *timber tree*. Wood makes *good fuel*. Fruit *edible* but poor.

False Sycamore. (*Harnâd*) F. pseudosycamorus, Dec. *Fuel*.

Hackberry. (*Mais*) Celtis Australis, L. A *shade tree* somewhat resembling the elm. The wood is good *timber* and *fuel*.

Walnut. (*Jauz*) Juglans regia, L. A magnificent *shade tree*, usually near fountains. The wood is much used in *furniture making*.

Mulberry. (*Tât*) Morus alba, L. The leaves are the *food of the silkworm*, and *fodder for cattle*. The wood is much used in *the arts*, and as *fuel*.

Black Mulberry. (*Tât Shâmî*) M. nigra, L. The berries are a *luscious fruit*. The wood is valuable as *timber* and *fuel*.

Plane Tree. (*Dilb*) Platanus Orientalis, L. A fine *timber tree*, growing along the river bottoms. Also good *fuel*.

Evergreen Oak. (*Sindiân*) Quercus coccifera, L. *Shade tree*, especially about tombs. Gives good *timber* and *fuel*.

Portuguese Oak. (*Mellâl*) Q. Lusitanica, Lam. *Timber and fuel*. A fine *shade tree*, but with leaves deciduous in autumn.

Scrub Oak. Q. Ilex, L. *Fuel*.

" " Q. Cerris, L. *Timber and fuel*.

Ehrenberg's Oak. Q. Ehrenbergii, Ky. *Timber and fuel*.

Valonia Oak. Q. Ægilops, L. The *cupules* are used extensively in *tanning*. The wood makes excellent *timber* and *fuel*.

Valonia Oak. (*Lûq*) Q. Look, Ky. *Fuel*.

Lebanon Oak. (*Sindiân*) Q. Libani, Oliv. *Timber and fuel*.

Beech. Fagus sylvatica, L. The nuts are eaten. The wood makes good *timber* and *fuel*.

Filberts. Hazel-Nuts. (*Bindûq*) Corylus Avellana, L. *Timber and fuel*.

Iron Wood. Carpinus Duinensis, Scop. A *hard timber tree*. Wood excellent *fuel*.

Hop Hornbeam. Ostrya carpinifolia, Scop. *Fuel*.

Alder. (*Naght*) *Alnus Orientalis*, Dec. A *shade tree* growing along streams. Furnishes good *timber* and *fuel*.

Willow. (*Sifşaf*) *Salix Safsaf*, Forsk. *Timber* and *fuel*.

Brittle Willow. (*Sifşaf*) *S. fragilis*, L. *Fuel*.

White Willow. (*Sifşaf*) *S. alba*, L. *Fuel*. The twigs are used for *basket work* and *making hedges*.

Weeping Willow. (*Sifşaf*) *S. Babylonica*, L. A fine *shade tree*.

Caprea Willow. (*Sifşaf*) *S. Caprea*, L. *Fuel*.

Pedicelled Willow. (*Sifşaf*) *S. pedicellata*, Desf. *Fuel* and *baskets*.

Black Willow. (*Sifşaf*) *S. nigricans*, Fries. Twigs used in *basket work*. Wood used as *timber* and *fuel*.

White Poplar. (*Haur*) *Populus alba*, L. A tree with a *tall, straight trunk*, much used for *roofing timbers*; also for *house carpentry* in the interior. It is extensively cultivated throughout the country, in the neighbourhood of watercourses.

Euphrates Poplar. (*Haur*) *P. Euphratica*, Oliv. *Timber* and *fuel*.

Black Poplar. (*Haur*) *P. nigra*, L. *Timber* and *fuel*.

Pyramidal Poplar. (*Haur*) *P. pyramidalis*, Roy. *Timber* and *fuel*.

Stone Pine (*Snâbar*) *Pinus Pinea*, L. A fine tree with a spherical head, but usually trimmed into a palm-like shape. Furnishes very *heavy beams* and good *fuel*. It is not often used in *house carpentry*, except for *roofing*. The trunks support the heavy earthen roofs of the flat-topped houses.

Aleppo Pine. (*Arz*) *P. Halepensis*, Mill. *Timber* and *fuel*.

Bruttian Pine. (*Snâbar*) *P. Bruttia*, Ten. *Timber* and *fuel*.

Cedar of Lebanon. (*Arz, Ibhâl*) *Cedrus Libani*, Barr. *Timber* and *fuel*.

Cilician Fir or Spruce. *Abies Cilicica*, Ant. and Ky. *Timber* and *fuel*.

Cypress (*Sarâ*) *Cupressus sempervirens*, L. A *shade tree*, especially used in *cemeteries*.

Large-fruited Juniper. (*Difrân. Arditsh*) *Juniperus drupacea*, Labill. *Timber* and *fuel*.

Large-fruited Juniper (*Difrân. Arditsh*) *J. macrocarpa*, L. *Timber* and *fuel*.

Tall Juniper. (*Sherbîn*) *J. excelsa*, M.B. *Timber* and *fuel*.

Phenician Juniper. (*Sherbîn*) *J. Phœnicea*, L. *Timber* and *fuel*.

Yew. (*Illeden*) *Taxus baccata*, L. *Fuel*.

Besides the above-mentioned trees, there are used as *fuel* almost all the shrubby and thorny plants of the country. Some—as *Billân* (*Poterium spinosum*, L.), several species of *Genista*, *Spartium*, *Salvia*, *Calycotomo*—are used even in *burning lime* and *heating ovens*, as well as in *cooking*.

### III.—PHYSICAL CHARACTERISTICS OF THE PEOPLE.

The people of Syria and Palestine are, as a rule, shorter of stature than those of northern Europe. It is uncommon to see a man over

5 feet 6 inches in height. Women are proportionally smaller than those of Europe. In a large assembly of natives, with a few Franks interspersed, the Franks generally overtop all about them by 2 or 3 inches or more. Nevertheless, tall men are occasionally seen, and a few tall women.

The inactive habits of citizens, and their free use of fatty articles of diet, cause a tendency to corpulency, which is especially noteworthy in the women. Most of them are embonpoint, and many, even quite young girls, are unpleasantly obese.

The features of the people are in general good, but differ much by reason of sect and habits; as a general rule, Christian women are better-looking than non-Christian. This results from their greater freedom, which allows them more exercise, and from their greater intelligence, which adds an indefinable charm to female features. Heredity strengthens these qualities. Brunettes are more common among the non-Christians than among the Christians, although many of the Christian women are quite dark complexioned. Many, however, are exceedingly fair. A fair complexion is always considered more beautiful than a brunette. The young men of the Mohammedans have little or no advantage in point of personal appearance over the Christians, but in later life the influence of belonging to the ruling class tells on the development of the countenance, and elderly Mohammedan men are in general finer looking than elderly Christian men.

The Mohammedan type of countenance is a long oval, with regular features, often but not always Semitic in cast, with dark hair, dark eyes, straight or slightly aquiline nose, a good mouth, a fair facial angle, usually rather ugly ears, and a good, average chin. The young girls even are rarely pretty. The old women are exceedingly haggish. This results less from natural defect of conformation than from the unbridled temper in which they constantly indulge from childhood. The voice of Mohammedan women is shrill, spiteful, and passionate. The lives of unrestrained passion are soon deeply sculptured into their countenances, and spoil what may have been there of natural beauty.

The Christian type of countenance is a little more rotund, the features of the women are in general decidedly more comely, and the complexion fairer. Many of the young women are beautiful. The forehead is broad and low, the hair usually dark, sometimes a light brown, very rarely red. The eyes are usually dark hazel, sometimes blue, generally fine. The Maronites are of a darker complexion than the Greeks and Greek Catholics. The Armenians are darker than either, in fact, always brunettes. In general, it may be said that the faces of the Christians, men and women, are regular, pleasing, and, as a whole, there are less ugly persons in a thousand than would be the case in most countries of Europe.

The Druze type strongly resembles the city Arab type of Arabia. The men are for the most part handsome, but the women are seldom beautiful.

The figure of the native woman is originally good. The young girls

have full busts, and, but for the disproportionate development of the abdomen from gross feeding and inordinate drinking of water, would be graceful. Those women who go to the fountains, and carry water jars and other burdens on their heads, acquire a very erect port, and move with precision and grace. But the slatternly dress, and some peculiarities in the mode of lactation, soon spoil female figures here, and, after twenty-five years of age, one rarely sees a woman who, by the greatest stretch of politeness, could be called graceful.

The mountaineers, and inhabitants of the interior table-lands, have great powers of endurance, as is shown by the long journeys which they take, and the fatigue and exposure which they bear, and the long continuance of labours which might be expected to wear out their vitality. For example, muleteers will start at daybreak, having fed and groomed their animals before light, and walk after them all day long, and then lie down in their *'abâyeh* to sleep on the hard ground. Their food during this long period will perhaps have been bread with olives or cheese, and may be an onion or a few bunches of grapes.

The porters of the cities carry immense weights on their backs. This very morning the writer saw one carrying five dressed sheep on his back, with the thermometer at 95° F. in the shade.

No doubt the endurance of the fatigues and exposure to which many of the peasantry are subjected is largely attributable to the absence of alcoholism in the system. To the same cause is to be attributed the excellent results of surgery among this people. Blood-poisoning is far more rare than among the alcohol-sodden people of Europe.

But although the peasantry are a fairly hardy race, great physical strength is not a characteristic of the people. Their meagre diet forbids this. Eating flesh but seldom, and living mainly on bread, milk and its derivatives, and vegetables and fruit, the muscular system is not commonly highly developed. Trades, that should cultivate muscle, are pursued here in a sitting posture, and with so little outlay of force that they do not contribute largely to the growth of the muscles. The result of this want of vigour is seen in the fact that, to achieve a given amount of labour many more men are required here than in our own lands. When labourers are called upon to lift a heavy beam, or roll a large block of stone, four times as many as we should deem necessary take hold, and make up by shouting for sturdy outlay of strength.

Exercises, as such, are rather distasteful, even to boys and men, and altogether so to girls and women. Children, of course, have sports, but they are not so active as those of colder lands. Baseball, cricket, tennis, boating, running, jumping, wrestling, boxing, and the numerous other active sports of young Englishmen have no existence and no counterpart here. The ideal of enjoyment is either a mad gallop on horseback or sitting by running water in the shade, playing cards, telling stories, or smoking and chatting. At weddings, however, the young men throw off their lethargy, and dance, sometimes with great expenditure of physical energy, and fence with sword and shield, and pirouette on their mettlesome

horses. The national game of *jerid*, which consists of throwing a stick while at a full gallop, and catching it on the rebound, is athletic enough, but is little played.

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#### IV.—MENTAL CHARACTERISTICS OF THE PEOPLE.

The intellects of Orientals are characterised by keenness of the perceptive faculties, good memory, and versatility. They are less remarkable for logical power, judgment, and originality.

The strength of the perceptive faculties makes it easy for children to learn what is laid down in a book and for young men in college to commit to memory the matter of a lecture, if the manuscript is given to them. The want of the logical faculty makes it impossible for the student to take notes from a lecture. He cannot select the salient points and pregnant words of a discourse and note them down. Hence teaching by lecture has not been found a good system for the people of this land.

As a corollary to the strength of the perceptive faculties, *curiosity* is a marked trait of Syrian character. If two persons are walking together and talking, some boy will be sure to walk as near to them as he can get to pick up scraps of their conversation. If one stops in the street to write a memorandum in his pocket note-book, a passing porter, with two hundred pounds on his back, poises his load on his hips and waits to see why. His curiosity excites that of a woman with a sixty pound water jar balanced on her head, and she stops. A little boy with a bunch of grapes in his hand must see what it all means, while indemnifying himself for loss of time by eating his grapes. A donkey driver lets his animals forge lazily on, while he peers over the shoulders of the boy with the grapes. The driver of an empty carriage arrests his course, and stands upon his box to see why a donkey boy looks over the shoulders of a grape-eating boy, a woman with a jar, and a porter with a heavy load, at a stranger with a note-book and pencil in his hand. In an incredibly short space of time a crowd has been collected. When the man quietly puts the pencil in the note-book and the note-book in his pocket, the porter resumes his weary plodding, the woman with the water jar swings away to her house, the boy who has just finished his grapes goes off with a whoop and a hoot, the donkey boy races after his loitering beasts and stirs them up with a few curses and blows of his cudgel, the driver cracks his whip and starts his team, the crowd dissolves, and the man with the note-book quietly goes his way.

This curiosity enters into the life of the people, and influences all that they undertake. Everybody's business is that of everybody else's. They do not hesitate to ask for information on whatever is going on, no matter how private its nature may be.

The good memory of Orientals makes the acquisition of languages easy, and it is quite common to see a person here who can speak and write well in several tongues. On the other hand, the deficiency of the logical

faculty makes it hard for them to excel in the Mathematics and the Natural Sciences.

The strength of their perceptive faculties, coupled with the weakness of the reasoning power, causes argument to move on analogical rather than logical lines. A point is better carried by an illustration than by a syllogism.

The versatility of their mind stands in the way of stability and cumulative attainment. Many individuals have attained general culture, few have become profound scholars. Superficiality is the characteristic of educated mind here.

It results from these peculiarities that originality of thought is rare. Men investigate nothing. They do not study Nature and her laws. They do not cultivate philosophy, except with a view to hair-splitting argument, of which they are fond. There is no literature in our sense of the term. The stories which stand in the place of a literature are obscene. Poetry, of which the people are passionately fond, is conventional and limited in its range. Love, war, personal adulation, and a mystical philosophy are its themes. There is no proper epic in the Arabic. There is no poetic literature of the home, of Nature, of national life and patriotism, of history, or of religious life. When the missionaries wished to prepare a hymn-book, they could not call out the poetic gifts of the people in hymnology. The hymns are almost all translations from the English. Yet the Arabs love poetry to a degree which seems to strangers almost absurd. Boys in college versify algebra and anatomy. Everybody with any pretence to education makes verses. In a speech the poetical passages are applauded, whether understood or not. Indeed, poetry is valued rather in proportion to the involution of the thought and the obsolescence of the words. But it is none the less valued, and is a power of no little importance.

When, through successive generations of education, the more solid qualities of the mind shall have become hereditary, the sparkle and brilliancy of the Syrians will lend a charm to their culture, which, even now, half blinds one to their superficiality and overweening self-confidence.

Meantime, the quality of self-confidence carries them far toward the realisation of the advantages of solid acquirements. A boy who has studied English but six months will stand up before an audience that would put an English boy, speaking in his own tongue, quite out of countenance, and debate, extemporaneously in English, a question of history and philosophy. He seems quite insensible of his deficiency, and only awake to his knowledge. Even failure does not seem to confuse and embarrass him. Diffidence is a quality almost unknown. Consequently an Arab always appears at his best. Whatever he knows he can use at call, and use skilfully and well.

In matters of *taste* the Syrian is undeveloped, but none the less strongly pronounced. He likes *contrasts of colour*, but does not understand *harmony of tints*. The poor, dirty women of Palmyra go to the

fountains in costumes of red, white, blue, and yellow. The Mutawâli women come into Beirût with bundles of grass to sell, wrapped in their crimson or scarlet veil, and when they have sold them march off with as much pride in the colour of their dirty garments as any European belle in her magnificent costumes. The houses are painted with the most brilliant hues of green, blue, yellow, and red. In some places the artisans have learned something of the harmony of colours, but often green and blue stare at you, side by side, on the same wall. They are constantly associated in their textile fabrics of wool and silk.

The Syrians love *music*, but it is usually either a dull monotone, in a minor key, or a series of wild sounds, which seem more like the inarticulate notes of a midnight forest than the regulated expression of the harmony of the soul. Yet such as it is, although hardly amenable to the laws of western notation, it has a power over the minds of the people apparently greater than that exercised by the more artistic harmony of Europe and America. Muleteers sing to while away the weary hours while they tramp behind their animals. Sailors sing to the plash of the oar and the pulling of the ropes. Quite young children sing most vociferously, and their voices are quite fascinating to their own people. In entertainments in the Frank schools the native music is far more appreciated than the foreign. There is singing at weddings, chanting at funerals, and intoning everywhere in divine worship. Music is more or less obedient to law in the Oriental mind, albeit the intervals and harmonies differ very widely from western ideals. It has even been committed to paper, and, in a modified form, expressed by western notation. Of this more anon.

The Syrians are not remarkable for the development of the idea of *form*. Few draw, and fewer paint. The ecclesiastical pictures are rude daubs, of the most conventional type. There are no sculptors, except the few who have learned a little of the art of making figures of men and other natural forms to meet a foreign demand. There are very clever stone-cutters, who can design and execute vases, pillars, ecclesiastical ornaments, balustrades, and elaborate patterns for walls and pavements, in marble, limestone, sandstone, and slate. Many of the arabesque carvings and complicated wall figures and pavements in Damascus and Beirût are masterpieces of this sort of art. But it is a conventional art, not an imitation of the free, graceful outlines of nature. Even in this the Oriental has degenerated from his ancestors, who carved the beautiful doorways, niches, and arches which adorn so many Saracenic ruins.

*Architecture* is almost a lost art. The standard idea of a dwelling house is a cubical box, with partitions and apertures. The staircase, if there be a second storey, is usually outside the building. Most of the roofs are flat. The only graceful feature of a truly Oriental town is the slender minarets, and the arcades which are built in front of the cube, to afford an outdoors for enjoying "*keif*," the "*dolce far niente*" so dear to this people. In some cities, as Jerusalem, the want of wood has led to

the development of the dome, not as an ornament, but as a matter of necessity. The effect is one of solidity and architectural beauty.

The Syrian taste for *location* is pronounced and correct. Although villages are necessarily built where water is accessible, the people take the greatest pains to build their houses on the most airy sites, overlooking the most extensive view. One of the villages near Beirût, which has a matchless variety of views over the green plain, the dunes, and the blue Mediterranean, is named *Shuweifât* (*The Little Views*), and not a spur of rock, or a knoll commanding the ravines which intersect the town, and divide it into three distinct villages, has been neglected in the choice of building sites. The women are contented to toil up 200 feet of steep hillside, with a heavy jar of water on their shoulders, rather than have their houses in the ravine, at the level of the fountain. Doubtless the choice of these fine sites is determined in large part by the fresh breezes which sweep over the more prominent features of the surface; nevertheless the proprietor speaks in glowing terms of the grand sweep of the view. The convents of the country are almost all placed in the most picturesque locations, often at the expense of great inconvenience in the matter of water and other supplies. For a similar reason towns themselves are usually picturesque, especially in rolling and mountain regions.

The taste for *physical beauty and ornament* is intense. The descriptions of types and instances of female beauty in Arabic poetry are fervid and infinitely varied. Nothing escapes the vivid word painting of the silky tresses, "black as the raven's plume," the snowy brow, "pure as the Alpine drift," the arched lids, the long, dreamy lashes, the gazelle-like eyes, the chiselled nose, the ruby lips, the pearly teeth, the dimpled chin, the rosy cheek, the graceful neck, the queenly form, the god-like gait, the lily hand, the slender fingers, the enamelled nails, which are all described with a variety of expression which the literary ingenuity of the poets and the marvellous flexibility of the Arabic language, have alike rendered possible.

The horse, the camel, the lion, the perfect warrior are types of beauty and nobility, which furnish inexhaustible themes for the taste and descriptive power of the poets. Hundreds of names exist for each of these ideals, most of them expressive of phases of excellence and beauty.

The *love of ornament* is a passion amongst this people. The poorest of the women wear gay colours, even if the material is fringed into rags and tatters of blue, and green, and scarlet, and yellow. They wear bracelets, even if they cannot afford anything better than brass, or glass, or pottery. They stain their fingers and nails and feet with henna. They tattoo their arms, breasts, chins, cheeks, and foreheads with blue and scarlet, and the Bedawin women, and some of the peasants, tattoo their lips with a lead-coloured stain. They wear ear-rings, nose-rings, brooches, tiaras of jewelry, velvet, silk, or lace, hair-pins with jewelled heads, necklaces, armlets, anklets, rings. The women, in many places, wear their dowry in

strings of gold and silver coins around their faces, or their heads, or hanging down their backs, braided with their hair. They love striking contrasts rather than harmonies in the colour of their dresses.

The taste for *odours and perfumes* is also almost a passion. Some of their standards are not agreeable to Occidentals. For example, *Habbaq* (*Ocimum Basilicum*) is one of their favourites. My patients constantly bring it to my clinics. It is rather too strong for most Europeans and Americans. Henna is also a great favourite. To many Western nostrils it is mawkish and offensive. On the other hand, the natives are equally fond of perfumes of undoubted excellence. They love to surround their dwellings with jessamine, violets, mignonettes, roses, tuberoses, and carnations. No more delicate compliment can be offered here than to present a bunch of sweet-smelling flowers. My clinical table is often fragrant with these floral tributes from those too poor to show in any other material form their gratitude for services rendered. In the houses of the poorest people you will often see a bright-flowered, sweet-smelling carnation or rose, in a fragment of a water-jar or an old petroleum tin.

The *feelings* of Syrians are characterised by intensity rather than constancy. They pass quickly from grave to gay. They are sensitive to the point of touchiness, especially in that which relates to their country, their sect, their family, or their religion. A man who will take reproof or reproach directed at his own personality will at once resent a slighting allusion to his family, and will become furious at an innuendo against his religion and his sect. To curse a man is so common that no one thinks much of it. But to curse a man's religion is an actionable offence. Foreigners who indulge in such bad taste as to speak disparagingly to Syrians of their people in general take the surest way of making themselves hated. The people constantly speak thus of each other, and of their people collectively, but it is the best policy for a foreigner who hears such a remark to receive it with discreet silence.

The intensity of the feelings of Arabs is shown by the vast number of phrases capable of a double meaning which are idiomatic in their language. To defend themselves against the supposition of intending a double meaning, it is customary for the Arabs to say *bela ma' na* (*without meaning*) whenever they use a word susceptible of such interpretation, or they will say *ajellak Allah* (*may God exalt your nature*), that is, above any such low and injurious construction of what I have said.

The *will* of the Arabs is rather irresolute. They do not lack *wilfulness*, but a steady, resolute, self-determined, self-reliant will is a rare quality. This undoubtedly arises from the breaking of their wills by ages of misrule and oppression. Meantime, the loss of a self-poised will explains in part the depression of all industries and the stagnation of enterprise, which none see more clearly than the people themselves.

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## V.—MORAL CHARACTERISTICS OF THE PEOPLE.

It is a difficult and delicate task for a foreigner to judge impartially of any of the characteristics of the people among whom he travels or lives. But in nothing is this difficulty so great as in point of *morals and religion*. The standards of different countries and peoples differ so widely in this regard that the largest charity must be exercised, and the most favourable construction given to all doubtful instances. In what may be said on this topic the writer will endeavour to give a calm, dispassionate, and just presentation of facts, accumulated during a long experience, and make only fair inferences and generalizations, and avoid, as far as possible, comparisons with other peoples.

*Truthfulness.*—There is an Arabic proverb, "*Lying is the excellence of men; the disgrace is to him who tells the truth.*" This saying, however, like all proverbial expressions, is only a sententious generalization, and can by no means be applied to all persons and all transactions. Many Syrians tell the truth at times, many generally tell the truth, a few nearly always. But it is so generally admitted that no native will tell the truth at once and simply, when it is disagreeable to the listener, that everyone expects a man to suppress a part at least of such truth, to cover it up by a partial lie, or to tell an out-and-out lie, which will prevent the person from suspecting the truth. Thus, if a father has died, the one who possesses the information may say to his son that his father is indisposed, or that he has been ill but is now well, or that he sends his regards and hopes soon to return. In either case, such is apt to be the son's conviction that the friend is not telling the truth that he usually breaks out at once into frantic grief, and adjures the informant to tell him the facts. If the informant thinks that the shock will be too great, he may now flatly deny the death. Otherwise, he may make a succession of admissions, each nearer to the catastrophe, and each an actual or virtual lie, until the truth bursts in its overwhelming force on the mind of the son.

I am daily asked by friends of my patients to tell the sick man that there is nothing serious, that he will soon be well, that he does not need any operation, and the like. As I cannot tell these falsehoods, the friends take it upon themselves to tell them for me, and appeal to me in the presence of the sick man to confirm them. It requires the utmost tact in many cases to avoid offending the sensibilities of the friends on one side, and frightening the patient to death on the other.

This class of falsehoods is looked upon by natives as right and necessary, and is dictated by a kindly though perverted feeling. Thus the writer was called to a distant part of the country to see a man in a desperate case of illness. When near the village, his conductor begged him to say to the sick man that he was by accident in a neighbouring town, and hearing of his illness called to see how he fared. On representing to my conductor how useless and shallow such a falsehood would be in deceiving the sick man, he suggested that I should tell him

that I was very much provoked at being called so far to see one who had no need of my services. I then asked him whether, having had confidence enough in me to call me, he had not enough to trust that I would use tact in my intercourse with the patient. He replied, "Of course he had, but——" and suggested other modes of meeting the case.

This class of falsehoods, while most foolish and ineffectual, is the least sinful of the many phases of untruthfulness ; but it is *well-nigh universal in the East*.

The people are, as a class, unreliable about keeping promises and agreements. Thus a carpenter engages to begin work for you on a certain day. When the day arrives it is quite likely that he will not come. To oblige you he will promise, when he knows that another job, previously undertaken, will prevent him from meeting his appointment with you. He does not reflect that you will be more provoked at his failure to come when he promises than his refusal to promise when he knew he could not come. Everyone who has any experience in building here knows how many weary days and weeks are wasted by the untruthfulness of the artisans on whom he relies. Boatmen and muleteers are especially untruthful, and often delay a journey by their failure to keep their word. In consequence of the universal distrust of promises of this sort, it is customary to exact of boatmen, livery stablemen, muleteers, and others with whom one makes an agreement, a pledge, which will be forfeited if the agreement is broken.

In general, Syrians put little faith in each other. The speaker is so conscious of the fact that the hearer does not believe him that he constantly fortifies his assertions with oaths :—"by my conscience," "by my virtue," "by my religion," "by the life of God," "by your life," "by the life of your son," "by the mercy shown to your father." These are some of the "oaths for confirmation" which are daily heard, but which do not end strife, because their value is well known. As the persons arguing a point both use the same oaths on opposite sides, it may be supposed that one set of asseverations neutralises the other. Perjury before the Courts is of daily occurrence. The Life Assurance Companies of Europe decline to take policies on Oriental lives, owing to the difficulty of obtaining reliable testimony on the points insisted on in the preliminary enquiry and the certificate of death.

So general is the habit of lying that it calls for an explanation. To the writer it has seemed to arise primarily from a sense of weakness and oppression, which has put the people on their guard against committing themselves. This explanation covers the innumerable number of falsehoods which seem to be uttered without any adequate motive, and which certainly do the person who utters them no good. A person who has told the truth has nothing more to say ; he has no other card to play. One who has told a lie still has the truth to fall back on, and may claim some merit in coming out with a frank avowal. In point of fact, we every day meet with instances in which a person has fenced and parried with untruths, and then at some opportune moment says, "Well ! I will

tell you the truth," so-and-so. The conversations of Samson and Delilah on the source of his strength illustrate this habit.

Once the habit of lying is established, it is easy to see how it should become the rule of conversation, in all cases where one wishes to be guarded. Instead of discreet silence, or skilful evasion of a compromising question, the more effective method of a deliberate falsehood is calmly resorted to, and justified on the plea of necessity. "What can we do?" is every day in every mouth.

It must not be supposed, however, that any one here maintains falsehood in thesis. The complimentary prevarications, the reservations, verbal and mental, in which they indulge to spare the feelings of others, the positive untruths which they tell with the same motive, are excused and condoned as necessary. But a reputation for truthfulness is as valuable in this land as in any other, perhaps more so.

*Honesty.*—This quality is *truthfulness in act*. It goes with truthfulness in word. An exact equivalent for the word honesty does not exist in the Arabic. The nearest to it is *amaneh*, which rather means trustworthiness.

It is customary for the steward of any institution or individual to take from the dealers a percentage on his purchases. This is justified by the idea that the dealer gives it out of his profits. Stewards often serve for very low salaries, expecting to indemnify themselves out of the perquisites of their position.

Government officers receive low salaries, and it is taken as a matter of course that they will supplement them by stealing and extortion. Although household servants seldom betray their employers to thieves, they do not regard petty pilfering of stores as very bad, especially if they have families to support. Household stores are kept under lock and key, and the perfect woman "giveth a portion to her maidens."

The closeness of the family bond causes relatives to lend each other far more money, with or without any written acknowledgment, than is usual in Europe or America. Such loans are very often unpaid, and many bitter family disputes arise from this source.

The vineyards, fig orchards, and melon patches are watched by an armed man, and no one would expect to get any fruit unless his property were so guarded.

Joint-stock companies are almost unknown in the country except as controlled by foreigners. There are two exceptions, that of the Tripoli Tramway, and that of the Tripoli, Hems, and Hamath carriage road. Their success thus far affords a hopeful augury of the growth of capacity and trustworthiness in the community.

Business firms are most frequently family combinations. There are, however, many upright and high-toned merchants and bankers, and their number is increasing every year. The number of business failures in Beirût is rarely over five per cent. of the total number of firms engaged in business; they are less common among Mohammedans than among Christians.

In official circles *bribery* is well nigh universal. The course of justice is so perverted by this habit that no one goes into court with any idea that the issue depends on the equity or legality of his case. Judges receive such inadequate salaries that they cannot maintain their families without bribes.

*Trustworthiness* may be considered as a branch of honesty. The work of labourers and mechanics requires much supervision. If it is day labour, the overseer must keep his eye quite constantly on the workmen, or the work flags. If it be contract work he must watch with greatest care lest inferior materials be furnished, and the work be done in a careless and slovenly manner.

If a contractor find that he cannot make good his contract, as to quality of material and workmanship, he is sure to default, and the Courts will sustain him, on the ground that he is not able to meet his agreement without loss. Much embarrassment arises from this cause, and great difficulty is experienced in getting either materials or work up to the standard, even where the terms are favourable to the contractor. Foreigners usually prefer day work, which, however, costs from 20 to 50 per cent. more according to the exactness of the job.

A person stationed at a given point, and told to watch until you return, or sent to a given point to await you, will probably soon leave his post, and come back to find why you did not come. Cassabiancas are not common here.

Many apparent instances of untrustworthiness are due to a want of care on the part of the *employé* in ascertaining exactly what is wanted. Other instances occur from a rooted habit of interpreting the directions, or improving upon them, according to a subjective standard of his own. It is quite common for an employed person to tell you that he thought it would be better to do so and so. One employer replied, "I do not hire you to *think*, but to do what I say."

*Chastity*.—The Arabic language is full of obscenity. Most of the commonest words have also secondary, obscene meanings. The speaker defends himself by a *belâ ma'na*, or *ajellak-Allah*, from the imputation of intending such a meaning. But the defence is a condemnation. It shows that at least such a thought is connected with the word used. In moments of anger these meanings are asserted openly, and language becomes ribald and crass. The obscenity, even of very small children, is very shocking to those trained in another school.

The literature of the Arabic language is full of the grossest thoughts and descriptions. The original "Arabian Nights" is a book which no modest person would care to read.

Masturbation and sodomy are extremely common among boys, and constitute serious difficulties in conducting a boarding school. Night watchmen have to patrol the dormitories and halls to keep these vices in check.

The penalty attached to fornication of girls is so severe that the offence is comparatively rare. Among the Mohammedan and Druze

sects a father or brother will kill an unchaste daughter or sister. Among Christians the death penalty is unusual, and seduction is more common. In all sects girls are married very early, often at 12, sometimes at 9 or 10. This is undoubtedly a protection against unchastity in unmarried females. It is also true that attempts at seduction of girls are frowned down by Orientals as inexcusable and cruel.

Chastity in married women differs in different localities. The fact that nearly all the houses are in villages or towns, and that there is no privacy in any house except in the large cities, tends to check adultery. In point of fact it is relatively uncommon. In the jealously-guarded Mohammedan harems, it is almost impossible. Among the poor, where the whole family lives in a single room, it is difficult. Among the peasant population the sentiment is strongly against it.

Harlotry is a trade in the cities, yet it is far less open and shameless than in the great capitals of Europe and America.

Undoubtedly, in the present state of education, the reserve enforced in the intercourse between the young of the two sexes tends to preserve chastity. Among the Mohammedans in the cities, it amounts to almost complete non-intercourse. To a Mohammedan young man of Damascus for example, all the female sex, except his near relatives, is a sheeted mystery. But in villages and in the desert the young men and women have more or less freedom of intercourse, which is rarely abused. Nowhere, and among no sect however, do the sexes mingle in social gatherings, or in places of worship, saving where European manners have done away with those of the natives.

*Profanity* is very common. It must be remembered, however, that a familiar use of the divine name and attributes, which grates upon western ears, is idiomatic in Oriental speech, and conveys no more impression than *good bye* in English, or *adieu* in French. Every salutation contains or implies the name of God. *Allah*, used with the rising accent, means "what?" *Yallah*, said to a troublesome child, means "go away"; or to a person whom one wishes to do something, means "begin"; or to a donkey, means "get up." If a person say, "I rang the bell *yallah, yallah, yallah*," he means I rang it *over, and over, and over*. If one yawns, he will probably end off with an ennuyed *yallah*. If a man stumble the bystanders will ejaculate *Allah*. It is the survival of a short prayer that no harm may come of the accident. Where a man would say *eh* as a sort of catch in conversation while thinking of a word, a man here would say *Allah-kheir, God is good*. It cannot be denied that this familiarity in the use of the name of God tends to lower the value of that great name, and to diminish its significance as used in devotion. It is a true taking of it in vain.

*Cursing* is extremely common, and often as ridiculous as it is wicked. A man will curse the father and grandfather of another, his harem, his religion, his donkey, his donkey's father, the devil. The writer heard a person the other day curse the religion of the devil. A woman was undergoing an operation for the repair of her ear, which had been slit by

a heavy ear-ring. Maddened by the pain of the operation she repeatedly cursed the religion of the ear-ring that caused her misery. Children who can hardly talk curse each other and their parents. Parents curse their children and the parents of their children.

*Family affection.*—It is delightful to turn from some of the weak points of Oriental character to those in which they show forth goodness of heart and lovely virtues. Family affection is one of the most characteristic of all the qualities of this land. The patriarchal idea has never been lost. In western lands we are strangers to our second and third cousins. In the east, even poor relations of the most distant degrees, are acknowledged. Some families, as the Shehâbs, Blemmas, Khâzins, and others, trace back their family history for generations and centuries, some of them for one or two millenniums.

Love of children is one of the most winning traits of the Arabs. The devotion of mothers to nursing their own children, caring for them in sickness, and mourning for them when taken away, is most touching. A mother will sit for hours at a time in a most irksome position in the bed to allow her child or husband to lean against her bosom, while she soothes his pains and lulls him to sleep by her endearing tones and loving ministrations. For days she will hardly taste food, and refuses to take a moment's sleep while watching a case of sickness. She will strip the coins off her head-dress, sell her jewels, or even her clothing and bedding to provide food and medicine for her sick child. I know of many parents who serve in menial capacities and deny themselves every luxury, to educate a son and make a gentleman of him. The phrensy of parents when they lose a child is sometimes almost fatal to themselves.

Love to parents is also a beautiful trait in the Orientals. There are few Gonerils and Regans and many Cordelias in the Levant. A father, not more than fifty years old, recently remarked to me that it had long been his day dream that he should arrive at the age when he could sit in his own house, while his son took the management of his affairs. Everywhere the aged grandfather and grandmother may be seen, honoured and beloved, in the houses of their offspring of two generations. The opinion of the elders is looked for with filial respect by their descendants, and their decision in matters of general family interest is usually final.

The liberality of members of a family to each other is very striking and beautiful. Children earning wages often put all, not required for their clothing, into their parents' hands. Parents continue to help their children long after maturity. Brothers and sisters help one another, sometimes by loan, very often by gift. It is a great disgrace to a family for even distant members to die by starvation. Hence such deaths are very rare. A man in straits in Syria can usually realise the means of relieving his difficulties far more readily than one in similar circumstances in the west. He goes to some cousin, perhaps of the fifth or tenth degree, and obtains the needed accommodation, sometimes as a loan at high interest, but often as a gift or a loan with little or no interest.

*Hospitality.*—This virtue is also one of the most characteristic

of the qualities of the people of this land, and sheds a most attractive light over their social life. Its most typical form and extreme application is seen in the case of the Bedawin. A stranger coming to a Bedawin encampment at once becomes their guest. Even if he be an enemy, he is entitled, by the law of hospitality, to shelter, food, and protection, and may stay as long as he pleases, quite unmolested. When he has left, and is fairly outside the limits of the camp, his late hosts may plunder and kill him.

In Qaryetein, a watchman of the vineyards once shot a Bedawin who was trespassing. Dreading the inexorable law of revenge, he resolved to flee to a Bedawin tent, and throw himself on the protection of his host. It chanced that he fled to the tent of the mother of his victim, who at once gave him the usual welcome and entertainment. Presently the avengers of blood traced him to the tent, and were about to enter and put him to death. The mother of the slain man, however, seized a club, and brandished it in the faces of the assailants. They told her that they had come in her behalf to kill the murderer of her son. She said she knew who he was, but that no one should dishonour the hospitality of her tent by injuring even such a guest. She continued to protect him until the town authorities redeemed him by paying the blood-money, which, when received, constitutes a complete quit claim.

If anyone, however poor, is eating, and a friend comes by, he at once says "*tafaddal*," i.e., "*prefer yourself*," meaning by that phrase to invite him to partake. As soon as a stranger arrives in a village, he may ask for the *menzoul*, which is a room, often the best in the place, reserved for the entertainment of strangers. This is often in the sheikh's house. The guest is asked what he wishes, or he is entitled to ask to be furnished with eggs, milk, fruit, bread, and other articles which he needs. Theoretically, he is not obliged to pay anything for these, being considered the guest of the village. Practically, all right-thinking guests do pay a reasonable compensation in some way, either by items, or by a lump sum given as a present.

It is very common for anyone who wishes a favour of another to say *ana dakhilak*, that is, "*I am your guest*," or "*dakhl Allah wa dakhilak*," that is, "*I am God's guest and yours*."

Two incidents, occurring on the same day, during a recent journey of the writer in the Nusairy Mountains, will illustrate the method and sweetness of Syrian hospitality better than a generalisation.

The first took place at El-Bîreh, a Nusairy village in the lonely highlands, where for four months the people are more or less shut in by the snow-drifts. An attendant had failed to keep up with us, and we found ourselves at mid-day without our lunch. The sheikh had invited us to the booth occupied by the Government inspectors of the harvest, and presently it was filled with men who came in from the threshing floors to welcome us. As soon as we let it be known that we needed food, the sheikh sent for what they had. A large tinned copper pan was brought, filled with a stew of squash and cracked wheat in Lebhen. We were so

hungry that we ate deeply into this coarse dish, and suffered from indigestion for several days after. Just as we were leaving the sheikh gave us a loaf of bread a-piece. He would not take any compensation, and apologized most earnestly for the poor entertainment.

That very afternoon we arrived at the Christian village of el-Meshta, the seat of a wealthy family named el-*Helu*. We rode through the gardens, and at the turn of a steep pathway came suddenly on an open space, over-shadowed by a noble plane-tree, with a cool jet of water plashing into a basin, around which were arranged divans. On these divans the elder members of the family were sitting or reclining, smoking their narghilehs, and chatting together—a most attractive picture of a patriarchal household. The younger men were lounging about in the shade. The boys were taking a plunge among the ducks in the tank which received the overflow of the basin, and enlivening the quiet conversation of their seniors by their shouts and laughter. A few black-eyed, shy girls were peering out of doors and windows, and wondering no doubt, who the three horsemen with Frank clothes and pith hats might be.

The moment we were seen the chief of the family stepped forward to bid us welcome, a dozen youths seized our bridles and stirrups to help us dismount, busy hands spread cushions for us in the breeziest part of the shady plaza, and we were made “at home.” Our horses were tied up by friendly hands, our saddle-bags taken into the house, and presently sherbet and coffee were served, and narghilehs offered. After we had chatted for some time, the host offered to give me the use of a room for a bath which I desired, and even proposed that his son should serve me as bath-tender, an offer which was modestly declined. When dinner-time came, an ample repast was served under the plane-tree, to the cooling sound of the fountain. The best room in the house was given to us for our beds, and we were made thoroughly welcome for the period of our stay, which, unfortunately for us, was only one day. They entreated us to stay at least a week.

One feature of the entertainment was that the host and his family themselves did a large part of the serving, not because they lacked attendants, for the great house was full of them, but as an assurance of their pleasure at our visit, and their devotion to our welfare. This feature of Oriental hospitality is so marked that the Marthas who serve are more than the Marys who give their attendance on the conversation of the guest.

As a corollary of the hospitality shown to the guest, he becomes immediately acquainted with the family, and on easy terms with them. There is no stiffness and reserve to be overcome.

Nor must it be supposed that this hospitality is shown only to guests who may be supposed to confer honour by their presence, or from whom a return in kind may be hoped. While we were at el-Meshta, a man from another village brought his little boy to be operated on for a stone. Our host at once offered, if I would do the operation, to let him have a room and entertainment in his house for the period which I

might deem necessary. It would have been at least two weeks. Had I consented to operate there the father would have consented as a matter of course.

Convents entertain any guests who may come without charge. Guests usually leave an acknowledgment of the courtesy. To every Bishop's establishment there is attached an "*Untush*," or place of entertainment, where even the poorest of his visitors may be accommodated. Many officials have such places of entertainment.

Doubtless the simplicity of the mode of life of most Orientals favours hospitality, as it is far easier to show it than in the more artificial life of the West. But it deserves a place among the virtues of the people because it springs from genuine goodness of heart, and a sense of duty to the stranger as well as the friend.

*Neighbourliness.*—Akin to hospitality is neighbourliness. The Arab proverb has it, "*the neighbour before the house*," that is, determine whether you are going to like your neighbour before you take a house. They have high ideas of the duties of neighbours. Our cold manner of not knowing one's next door neighbour is wholly contrary to Oriental ideas. It is with them at once a duty and a pleasure to know them. In sickness one visits and ministers to a neighbour almost as to a relative. It is expected that a doctor should favour neighbours with lower fees or take none. A tradesman is expected to deal better with neighbours than with others. Your next neighbour has a right to purchase of property prior to that of your own brother, a right sustained in law. A person appealing for aid and sympathy will say, "*I am your neighbour*." The Scripture is full of allusions to neighbours and neighbourliness. It is no strain on friendship to borrow food and bedding from a neighbour in case of emergency. To lend them is only a modified form of hospitality. A woman, who has a young child, is always ready to show her friendly feelings by nursing the child of a neighbour who may be in need of such an accommodation. In fact, it is quite common to exchange courtesies in this line during a visit. It is a sort of *blood-sisterhood*.

*Charity.*—Systematic beneficence is not common, but it is everywhere esteemed a virtue to feed the poor. It is even meritorious to feed street dogs. So general is it to give food to beggars that a large mendicant class is supported in this way. The religious beggars, *faqîrs*, have no other means of living, and travel where they will are sure of a sufficiency. It is not at all necessary to be lame, or blind, or deformed, in order to secure alms. There is a Moslem, living in a good house, with a family, and who goes about in a fur-lined cloak, and does nothing for a living but beg. He is supported from year to year in this way. Some Emîrs go about on blood mares, with an attendant, and beg their living, as well as that of their horse and groom. As a rule the alms given is small in amount, but the applicants are numerous, and many make a principle of never turning any away without help.

There are benevolent societies in most of the cities of Syria, and considerable amounts are raised and distributed among the poor.

*Temper.*—Syrians are ordinarily good-tempered. Like all mercurial races they are generally gay and cheerful, and seldom morose and crabbed. They are, however, liable to sudden and violent outbursts of temper, which transform usually mild and amiable persons into furies. During such paroxysms of ungovernable rage the whole frame is wrought up into a hysterical state, the eyes start out of their sockets and become bloodshot, the face becomes livid and purple, the veins of the neck are engorged, the hands and arms are projected forward, and the feet stamp in a transport of passion, while the tongue pours out a volume of vituperation with a voice which can be heard hundreds of feet away. Many persons lose their voices temporarily, some permanently, from these thundergusts. Many are made ill by them, and some lose their lives as a consequence of the strain on heart and lungs and brain. The least consequence of such an indulgence of hot temper is usually headache and lassitude, which often last for many days. So common are such outbreaks that one cannot pass any great distance along the streets of a city without witnessing one. They are especially common around the fountains, owing to questions of priority and privilege in the matter of drawing water.

This vehement anger, which is usually unrestrained from childhood, leads to most serious brawls, and often ends in fatal assaults with club, or knife, or firearms. It is amazing to find on what a small foundation some of these desperate affrays rest. A controversy about a few paras, the question as to which of two women shall put her jar first under the waterspout, an allusion to the family or religion of another, a pleasantry susceptible of a double entendre, are sufficient to set a village aflame, and to create a blood feud between two families. In such quarrels the partisan spirit overrules every other consideration. If a brawl is going on in a village or a quarter of a town, residents, attracted by the noise, rush to the scene and array themselves on the side of their clan or religion, usually without reference to the merits of the controversy.

*Revenge.*—It is generally considered that a hasty temper is soon sated with rage and ready to forgive. Unfortunately the idea of revenge is a national trait of the Arabs. The law of revenge is best exemplified in the Bedawin character and usages, where it underlies the whole mode of existence. It will, therefore, be treated of at length in the essay on the Bedawin. But the influence of their principles and practices is felt among all the people of Syria and Palestine. Injuries are cherished and nursed, and the time for revenge awaited with a patience and persistence seemingly at variance with the national character. Many a stab in the back delivered, in a dark lane at night, into the chest of a person unknown to the assailant, revenges an injury committed by a member of the family of the injured man on the assailant or one of his family. This second assault can only be atoned for by the blood of the assailant or of one of his family or religion. The Druzes practise the *lex talionis* more than any other of the Orientals except the Bedawin. But the Christians far too often vie with them, and in consequence a long series

of bloody civil wars, ending in the terrible massacres of 1860, devastated Lebanon and rendered it one of the most unstable provinces in Turkey. Happily, under the wise system of government inaugurated by the great powers of Europe, these feuds have died out, and peace and prosperity bless that beautiful range. Private revenge, however, still keeps alive hatreds and personal feuds of a most serious character.

*Peace-making.* It might be thought that with their explosive tempers, and the principle of revenge recognised and approved, the people could never arrive at the equilibrium of goodwill and kindly feeling after a quarrel. But here comes in a good trait. The Orientals are great peacemakers. In a street brawl some one or several people rush in, tear the combatants apart, and often at serious risk to their own safety hold them off from each other while they and others remonstrate, and use their neutrality to bring about a reconciliation. They do not esteem any amount of time or effort too great to effect this end. So when a family quarrel occurs, disinterested parties busy themselves in bringing about a rapprochement, and obliterating the traces of the controversy. And this is done, not with the reluctance springing from a half-unwilling sense of duty, but with the unmistakable enthusiasm and zeal of those who desire peace. Men will give up their business, and sacrifice much time, and exhaust the ingenuity of friendship to allay passions, soothe wounded hearts, and heal the breach. The same kindly impulse which leads the peacemaker to give himself to the task of reconciliation, leads both parties to recognise in him a sort of authority, which entitles him to impose conditions on both. Wonderful is the ingenuity with which he persuades both that they have gained everything and lost nothing by the adjustment. Untiring is the patience with which he smooths down the ruffled feelings, quenches each spark of passion as it flickers up again into a tiny flame, and finally brings the late combatants together in a brotherly embrace and kiss. Among the ingenious methods by which susceptibilities are allayed is the custom, instead of asking forgiveness of one another, for the two combatants to ask forgiveness of God, a method sound in religion as well as philosophy. It is not surprising that the Arabs should be peacemakers, as they all feel the necessity for the office. In an hour the peacemaker may become a party to a quarrel, in which he will need and obtain the pacificatory services of the parties whom he so lately reconciled.

*Temperance.* The Mohammedans are on principle total abstainers. Many Christians follow them in this matter. Although living in a wine-producing country the people are, as a class, non-users of wine and other alcoholic beverages, and of those who do use them few are drunkards, and most only drink at comparatively rare intervals. Except where European influences prevail it is rare to see wine on the table.

*Cruelty and Mercy.* These opposite traits are also characteristics of the Arabs. Their cruelty arises rather from thoughtlessness than from ferocity. Children are not taught that it is cruel to tie a string to a bird's leg and let it fly for a short distance, and then jerk it back, and

repeat this until the poor creature dies of exhaustion and grief. They are not taught that it is cruel to catch birds with limed twigs, and then to tie their wings together over their backs, and string them on a stick, and carry them in this agonising attitude for hours before they are killed. No parent ever remonstrates with a child for pulling the wings and legs off insects. It is no wonder then that men come to load animals, the backs of which are all raw, and continue to drive spavined and foundered animals until they drop under their loads. It is not wonderful that they beat their beasts most barbarously. All these cruel habits are found in every land where children are not early trained to be kind to dumb beasts, and where public sentiment and law have not come in to restrain barbarity.

Cruelty to animals is for the most part confined to those which are hunted, or loaded, or driven. On the other hand, herdsmen are usually merciful to their flocks and herds. They do not overdrive their charge. They are diligent in watering them, and finding suitable pasture for them. They direct them by words and ejaculations, but seldom beat them or stone them. Few sights are more interesting than the care which a shepherd takes to coax his sheep and goats to drink their fill at the water-troughs, by banging on a copper kettle, calling to his wards in sheep and goat phrases, and mixing a little tar with their water to give it an agreeable smack. Even the muleteers, although they will load their galled animals, yet when they come into camp take much pains in dressing the sore spots, and adjusting pads to relieve pressure. And, no matter how tired the muleteer may be, he will not neglect to curry and rub down his more tired beasts. The click of the currycomb often awakens the camp an hour or more before dawn.

Worn-out animals are turned out to graze. It is not considered merciful to put an end to them. The writer has seen a horse, with his hoof torn off, left to eke out his existence on the public common. It is a perverted sense of kindness which spares him. It is considered a merit to feed street-dogs and stray cats.

Children are in more danger from over-indulgence than from cruel treatment. Only in the silk mills is there anything like the systematic over-work of children so common in the manufacturing countries of Europe. Employers are seldom cruel to their workmen, and public sentiment is always against them if they are.

There is a kindly regard for the blind, the maimed, lepers and insane. Blind men feel their way about with perfect confidence by means of their staff. They are never allowed to die of starvation. The maimed are sure of a living, and often of that of a sound companion who does the soliciting, and waits upon the injured person for a share in the proceeds. The insane go about the streets unmolested, and are seldom violent. Kindly offices to the sick and unfortunate are general.

*Envy* is not a conspicuous trait of the people. On the contrary, they are, as a rule, contented. Believing, as a large part of them do, in the absolute decrees of God, and the inevitable appointment of their lot,

they are inclined to accept it even too willingly, and to regard it as fixed. Children usually adopt the guild or employment of their parents. The restless, feverish desire to better their condition, so characteristic of the overcrowded states of Europe, has only begun to ferment in the body politic of Syria. Its principal manifestation thus far is in the vast numbers who have emigrated to North and South America and Australia, to seek their fortunes.

*Jealousy* is necessarily a part of the Mohammedan system. It is in striking contrast with the confidence shown by Christian communities in the same localities. There is no doubt that under the system of polygamy nothing else than this supreme jealousy would prevent universal scandal and vice.

It will be seen from this review of the moral characteristics of the people that many of their traits are such as belong to an undeveloped child-like stage, and that the good qualities may be further cultivated, while many of the bad may be expected to disappear with advancing culture and civilization.

#### VI.—RELIGIOUS CHARACTERISTICS OF THE PEOPLE

In a country where there are so many religions as in Syria and Palestine, and so sharply defined, it might seem difficult to find any features in common which would characterise the whole. Yet there are such features.

(1) *Religion is universal*.—The whole population is enrolled by the Government according to religious divisions. The first question asked of a man in court is "What is your religion?" To say that a man has no religion is equivalent in public opinion and law to cursing his religion, and declaring it to be of no account, as it is held to be impossible for anyone to be without religion.

(2) *Religion enters into all the Relationships of Life*.—A considerable part of men's names is compounded of the names and attributes of God. The same forms of salutation, containing the same prayers and ejaculations, are used by all. A few are special to particular sects, but the name of God enters into all. Religion controls labour. Each sect has numerous religious holidays, during which its votaries abstain from business. The aggregate of these holidays is large, numbering at least a hundred days in the year. The hindrance to business is enormous. Some of the shops are closed one day for a Maronite feast. Another day others are closed for a Greek holy-day. Then follow Jewish and Mohammedan *non dies*. Sometimes all the Christian shops are closed the same day, when the calendars happen to correspond. In large building operations, where men of several sects are employed, much embarrassment is experienced from this cause.

Religion regulates the social relationships and affinities. Marriages between Mohammedans and Christians are of course out of the question.

Druzes and Christians do not inter-marry. Mutawâlis and Sunnite Mohammedans also do not cross their own lines. Jews have no right to inter-marry with any other sect. Even Christians of the different sects seldom inter-marry. Furthermore there is comparatively little visiting or social intercourse between Christians and Mohammedans and Jews. Druzes mingle more with the other sects, as there is a special provision in their articles of faith for allowing even pretended advocacy of Islam and Christianity.

Sectarian schools are the rule, non-sectarian schools have not proved a success.

(3) *All the Religions are Ritualistic and Formal.*—They lay great stress on the externals of conformity, on feasts and fasts, on pilgrimage and vows, on stated seasons of prayer, and on the efficacy of priestly mediation. While there is a vast difference between the ritual of the semi-idolatrous Christians sects and that of the iconoclastic Mohammedans, they touch in the matter of reverence for tombs and sacred sites, and their belief in supernatural agencies at work in human affairs. They all believe in charms, relics, and texts worn about the person, or suspended or nailed about the house. A Mohammedan will string about his neck a bit of alum, a shark's tooth, a tin case containing a verse of the Koran or an incantation, and a bored pebble. A Christian wears a little picture done up in a small tin box, a bit of the wood of the Cross, a small relic of some saint. A Jew has his special necklace of charms. And all these are for one common purpose, viz., to ward off the evil eye. So alike is their regard for sacred sites that many Christian shrines, as the Convent of St. Catherine, at Sinai, and that of St. George, at el-Husn, are in the odour of sanctity to Mohammedan nostrils, while many Mohammedan and Druze shrines are frequented by Christians. Jerusalem and Hebron are alike sacred to Mohammedans, Jews and Christians. If any convent or tomb of any sect gains a reputation for miracle-working among the votaries of that sect, it will soon attract those of other sects and become an object of reverence to all.

(4) *All the Religious Sects Agree in Attaching a Secondary Value to the Pious Life.*—They swear substantially alike. There is little difference in their lying or cheating. If a man is true to the externals of his religion he is not debarred from its privileges on account of immoralities. Some restraint is exercised by the confessional on the Christians, but it is notorious that bandits and libertines, who are liberal to the Church, have not much difficulty in securing its sacraments. A Mohammedan who was hung for murder in the first degree in Beirût some years ago, and that the murder of a Mohammedan Officer of the Government, was cut down and taken by an immense procession of the people of his sect, headed by its chief dignitaries, to the principal mosque, washed and buried with great pomp, and all the religious privileges accorded to the most pious. Though a murderer, he was none the less a believer.

(5) *Holiness is not a Prominent Object of any Religion of the East.*—Not that there are no pious persons in any of the indigenous sects, but that

the attainment of holiness is not set before them by their teachers, and seldom sought as an end. The Pharisaic spirit is the prevalent one.

(6) *The Sense of Sin is Almost Dead in All.*—Men seldom or never admit to one another that they have done wrong. They never seem distressed because they have sinned, and defiled their own souls. While they are as awake as others to the consequences of sin, and as anxious to escape them, they do not bewail the sin itself, and abhor its stain in the soul.

(7) *They are all Nearly Alike in a Narrow Bigotry and Intolerance.*—The sectarian spirit has destroyed patriotism, and divided the body politic into a number of irreconcilable schisms, which stand more in the way of the progress and amelioration of the people than any other cause.

## BAROMETRICAL DETERMINATION OF HEIGHTS IN LEBANON AND ANTI-LEBANON.

By Professor ROBERT H. WEST, M.A.

THE following observations at upper stations were taken by myself with a mercurial barometer, Casella, 738. The sea level observations are from the records of the Observatory of the Syrian Protestant College, Beirût (111 feet above sea level). These readings are from barometer, Browning, 244. All readings at upper stations are corrected according to certificates from Kew.

The reductions have been made according to the tables prepared by Arnold Guyot (Smithsonian Meteorological and Physical Tables, 1884, pp. 371-386). In cases where there was no reading at Beirût simultaneous with the observation at the upper station, the necessary readings have been obtained by interpolation from the tri-daily observations; as the variations of the barometer at Beirût are very slight and regular during the summer months, these interpolations are sufficiently accurate.

In the appended notes, I have referred especially to the determinations of the late Sir Richard Burton and Mr. Tyrwhitt Drake in their "Unexplored Syria" (London, Tinsley Brothers, 1872), and the map issued by the French Government in 1862, "Carte du Liban." These are the only original sources to which I have had access, and most of the heights given in the other maps and books which I have consulted, appear to be drawn from one or the other or both of these sources.

	Date.	Barut.			Upper Station.		
		Barom.	Att. Therm.	Ext. Therm.	Barom.	Att. Therm.	Ext. Therm.   Altitude in feet.
1. Khan Muzhir, near highest point of Damascus Diligence Road.	August 23rd, 1887	29.770	86	89	25.110	72.3	72   5,022
2. 'An Mandab, on northern face of Jebel Kneisah.	" "	29.770	86.3	85	24.744	72.5	72.5   5,425
3. Jebel Sunnin, summit of west face, but estimated as 200 feet below highest point of mountain.	" 24th, "	29.790	86	89	22.404	75	75   8,446
4. Top of natural bridge near Neba' ul Laban	" 25th, "	29.836	82	83.5	24.874	73	73   5,330
5. 'Aqurah, above village	" "	29.840	84	82.5	25.422	61.5	61.5   4,628
6. Hasrûn	" 27th, "	29.790	83.5	80	25.522	65.5	65.5   4,486
7. The Cedars, platform near Maronite chapel.	August, 1887	29.861	83.5	83	24.029	79.4	79.4   6,420
8. Mean of six observations.							
9. Pass above Cedars, on road to Ba'albek	August 31st, 1887	29.883	82.5	83.5	22.330	74.5	74.5   8,530
10. Peak No. 1. (See Note)	" "	By Aneroid.					
11. " 2	" "	29.880	83.7	84.5	21.134	75.5	75.5   9,094
12. " 3	" "	29.878	83.7	84.6	21.070	75.3	75.3   10,142
13. " 4	" "	29.878	83.7	84.7	21.012	76.3	76.3   10,227
14. Ain Ata	September 3rd, 1887	29.910	84.0	81.7	24.922	76.3	76.3   10,218
15. Zahleh	" 6th, "	29.810	81.3	76	26.706	56	56   5,385
16. Aqia. (By Aneroid)	August 25th, "	...	...	...	...	...	...
16. Damascus. Mean of morning observations	July, 1890	29.749	80.5	82.4	27.597	77.7	77.7   3,615
" " " afternoon	" "	29.754	83.2	86.2	27.541	85.5	85.5   2,337
17. Bludân. Mean of 18 observations	July and August, 1890	...	...	...	...	...	...
18. Highest peak back of Bludân	August 20th, 1890	29.836	86	87	22.578	67.3	67.3   5,133
19. Abu-ul Hîl	August 20th and 25th, 1890	29.807	85.6	87.2	22.478	65	65   5,197
20. 'Asâl-ul-Ward	August 26th, 1890	29.726	85	82.5	24.840	71.5	71.5   8,134
21. Yabûd (fountain)	" "	629.72	86.2	84	25.502	83.3	83.3   5,255
22. Halimat Qabû	" 28th, "	29.841	87.2	86.1	22.566	64	64   4,586
23. Deir 'Atyah	" "	29.820	88	88	26.080	79.7	79.7   8,045
24. Ma'illa, garden of Mar Sa'kis	September 1st, 1890	29.864	82	82	25.354	64.3	64.3   4,016
							4,737

## NOTES

1. French map gives for highest point on Damascus Road 1,542 metres = 5,059 feet. As my observation was taken some 30 feet below the highest point, this is a very close agreement.

3. Jebel Sunnîn. French map, 2,608 metres = 8,557 feet. I was unable to ascend to the highest point for lack of time, but my reading, plus the estimated remainder, would make the altitude 8,650 (about). Burton quotes Van du Velde (Scott), 8,554.

5. 'Aqûrah French map. 1,400 metres = 4,593 feet. A remark may be made in respect to this village, which is true with a great majority of villages in the mountainous districts of Syria. They are built on hill-sides, so that the top of the village may be several hundred feet higher than the lower part. This fact of itself will explain many differences in the altitudes given by various travellers.

7. The Cedars. Burton (I., 257), quotes Van du Velde, who in turn takes Major Scott as his authority, 6,315 feet. French map gives 1,925 metres = 6,316 feet.

8. Burton (I., 257), 8,351; also (I., 76), 7,700.

9-12. The peaks north of the Cedars are the highest in Lebanon or Anti-Lebanon. Burton is the only original authority with which I am acquainted which gives names to them all; but, although I am quite familiar with them having ascended them three times, I cannot certainly identify his peaks, except No. 4. I think my No. 1 is his Dhahr-ul-Qodîb (wrongly transliterated Zahr-ul-Kazîb), to which he assigns an altitude of 10,018. This was obtained by means of mercurial barometer; all others of his observations are by aneroid. No. 2, Jebel Muskiyah, 10,131; No. 3, Jebel Makmal, 9,998, and No. 4, Jebel Timârûn, 10,533. This last is given by the French map as Dhahr-ul-Qodîb, 3,063 metres = 10,049 feet (mis-quoted by Burton, 6,063 metres!). None of these names have I ever heard from shepherds or others in that region except Dhahr-ul-Qodîb, a name which they sometimes apply to the whole range, and sometimes to the particular peak, No. 4. The names most commonly given to the whole range, just north of the Cedars, are Jebel-ul-Arz, "the Cedar Mountain," and Jebel Fam-ul-Mizâb. This latter, which is also applied to the rounded peak overlooking the Cedars to the north, means "the Mountain of the Mouth of the Waterspout," and is given very appropriately from the way in which the water is drained from the little depression among the highest peaks.

14. Zahleh. French map, 945 metres = 3,100 feet.

16. Damascus. The great difference between the results of the morning and afternoon observations is noteworthy. Probably the explanation lies in a fact I have frequently noticed, that the diurnal variation of the barometer is much greater in the interior than it is at Beirût. This, being quite unknown in amount necessarily introduces an element of uncertainty into all barometric determinations in the interior; but, in

general, observations taken in the middle of the day will give higher resulting altitudes than those in the morning or evening. Indeed, in this part of Syria, where there are high mountains, and plains between which become greatly heated during the day, it is evident that unknown and unknowable local conditions play an important part, and make barometric determinations at best but approximations. These remarks, true for mercurial barometers, apply with tenfold force to determinations by means of aneroids, which are most erratic in their readings, and which need to be compared with a mercurial barometer not only at the beginning and end of each journey, but every few days during it. Other determinations of the altitude of Damascus are as follows:—French map, east of city, 697 metres = 2,286. Stübel's map, "Dschebel Hauran," 631 metres = 2,070, plainly too low. Map of German Palestine Exploration, 691 metres = 2,266 feet. New Map of Palestine Exploration Fund, 2,362, being the figures given by the French map for some distance west of the city. Burton gives no results.

17. Bludân. The new map of the Palestine Exploration Fund gives 5,140.

18. The Peaks above Bludân. Here, as in 9–12, I have been unable to certainly identify Burton's names, although I summured in Bludân and ascended the mountains several times. But the peak called Shayyâr 'Ain-un-Nusûr is certainly placed too far north both on Burton's map and on the new map of the Palestine Exploration Fund; the "Fountains of the Eagles," from which it is named, are at the head of the steep valley which runs north-east from Bludân. An aneroid determination of their altitude gives 7,550 feet. The peak whose altitude I have here given is immediately to the south, overlooking the little meadow in which the fountains are situated.

19. Abu-ul-Ilîn. There is no difficulty in identifying this peak. Burton gives 8,330. But a re-calculation from his observation, vol. I, p. 259, applying the correction there given, and using the mean monthly barometer at sea-level, corrected for temperature (29·775), and day temperature at Beirut for July and August (85·6), I obtain as a result 8,031 feet. The same remarks apply to the other observations and results given on the same page of his book.

20. 'Asâl-ul-Ward. Burton, 5,553; re-calculated, 5,232.

22. Halîmat Qabû, the northernmost prominent peak of Anti Libanus. Burton gives 8,257; re-calculated, 8,000. Burton names the two other "Halâim," or peaks immediately south of Halîmat Qabû, as Halîmat Qar'â and Halîmat Kurrays; but our guide named them Halîmat Qârah (so named from the town not far distant, on the plain) and Halîmat Qar'â, respectively.

The other high peak of Anti-Lebanon, called by Burton "Tala'at Musa," and whose altitude is given by him as 8,721 feet (re-calculated 8,440), I did not have an opportunity to ascend.

24. Ma'lûla. My observation was taken in the garden of the convent of Mar Sarkis, above the village. I should estimate the altitude of the

village to be 4,600–4,650. The German "Palästina" Map gives 1,429 metres = 4,688 feet.

15. The aneroid observations at Afqa, and also in No. 9, are corrected according to comparisons made with the mercurial barometer within a few hours both before and after, and are hence comparable with the other determinations in accuracy.

Syrian Protestant College,  
Beirût, Syria,  
*January 5th, 1891.*

## PROVERBS AND SAYINGS AMONG THE SPANISH JEWS.

By REV. J. E. HANAUER.

I FORWARD a list of "Ladino" or Judeo-Spanish proverbs. Whether or not these come from European sources I am unable to say. With the exception of one or two, for instance, "All is not gold that glitters," they were new to me when I collected them, not from books, but as they fell from the lips of Spanish Jews in the course of conversation. I noted them down, and when I had collected a good number a Judeo-Spanish scribe wrote them down on the paper I send, and from my dictation. Nos. 38, 39, were added by him, and as I have never heard them used in conversation I cannot vouch for them. In my notes I have in several cases indicated what seem to me to be their equivalents in English or German.

The transliteration is arbitrary, I have no knowledge of Castilian Spanish, and have therefore given the proverbs as they sounded to my ears, and were noted down when I first heard them.

(1) קאדה אוננו פראַכע לה צראזיקה · פארה סו פטיקה ·

1. "Cada uno trava la brasika para su petika." "Everybody draws the little embers for his little cake." Amongst the Arabs and fellahin there is a saying exactly similar.

كل واحد بيصحب الجمر الى قرسه

(2) אונה מאנו לאַכע לה אונטרה · אי לאס דוס לאַכאן לה קארה ·

2. "Una mano lava la otra, e las dos lavan la cara." "One hand washes the other, and both wash the face."

(3) מיטליקרה מאטה פרים · סייני מארידוס אין און מין ·

3. "Mishlikera mata tres, siete maridos in un mes." "A meddlesome

or tale bearing woman kills three (persons) and (gets) seven husbands in one month."

NOTE.—The three persons killed (metaphorically) are herself, the one to whom she has been babbling, and the person slandered.

(4) מארידו ינו • מארידו בואינו •

4. "Marido yeno, marido bueno." "A full, *i.e.*, rich, husband is a good husband."

(5) חאסידה חי בואינה גדיאה • ביזה לחם מזוזות • חרונה לחם  
פיטאס •

5. "Chassida, e buena Judea, beza las mezzuzoth, arrova las pitas." "She is a Chassida, and a good Jewess, who kisses the mezzuzoth and steals the loaves," is a striking description of a hypocrite."

(6) קין חל סילו חסקופ • חלה קארה לי קחי •

6. "Quen al cielo ascupe, a la kara le kaye." "Whoever spits at the sky will have the spittle fall back on to his face."

(7) דזיאנו לה פריסיאדה • נייצי פוסטאדה •

7. "Desio la presiada, nieve tostada." "The precious (*i.e.*, spoilt) girl desired toasted snow." This is the same as the English saying about a spoilt child crying for the moon.

(8) חל פיניינו • חונה קרוסטה מאס •

8. "Al tenioso una krosta mas." "To the person afflicted with a scab one crust more (or less does not matter)." The real sense seems to me to be that folks are too apt to think that it does not matter much if one oppresses those who happen to be down in the world. It may also be the equivalent of the English saying, "It never rains but it pours."

(9) אגראניקו אגראניקו • סי לי חינני חל גאיו חיל פאפיקו •

9. "A granico, a granico, se le inche, al gayo el papico." "With one little grain after the other the cock fills his little crop," *i.e.*, many mickles make a muckle.

(10) חלטו חלטו קומו חיל פינו • מינודו מינודו קומו חיל קומינו •

אמארגו אמארגו קומו לה פיל • דולסי דולסי קומו לה מיל •

10. "Alto, alto como il pino, minudo minudo come il commino, amargo amargo come la fiel, dulce, dulce come la miel." "Tall, tall (*i.e.*, sublime)

\* NOTE ON 7.—I have sometimes heard פריגניאדה "pregniada," substituted for פריסיאדה in 7. It must be borne in mind that Orientals (whether Christians, Jews, or Moslems), even though most respectable, frequently, as Mr. Neil observes in his works on Palestine, speak freely and unreservedly on subjects which are banished from European society as topics unfit for conversation.

as the pine tree, minute, minute as the cummin seed, bitter, bitter as gall, sweet, sweet as honey," is a riddle descriptive of the art of reading.

(11) סייטי איסקלאבאס אי בואין מארידו · קי לו · סיירבאן פור  
איל אוידו ·

11. "Siete esclavas, e buen marido, que lo siervan por el oyido." That she may have "seven slaves and a good husband to serve her at her least word," expresses the wishes of a mother for her daughter.

(12) מדיקו אי קומאדרי · קאמינאן די טאדרי ·

12. "Medico e commadre, camminan de tadre." A doctor and a nurse are out late.

(13) טי לו דיגו אטי מי איזה · פארה קי לו אינטיינדאס טו מי  
נאירה ·

13. "Te lo digo a ti mi eja, para que lo entiendas tu mi nuera." "I tell it thee, my daughter, that thou, my daughter-in-law, shouldst understand it," proves that the art of 'talking at' a person is cultivated even by the Sephardim.

(14) נינגונו סאצי לו קי איי איז לה אוייה · מאס קי לה קונארה  
קי לו מנייה ·

14. "Ninguno save lo qui ai en la oya, mas que la cucchara que lo menia." "No one can know, better than the spoon that stirs it, what is in the pot." (The heart knoweth his own bitterness, and stranger intermeddleth not with his joy. Proverbs xiv, 10).

(15) לה מאדרי קון לה איזה פור דאר אי טומאר סון אמיגאס ·

15. "La madre con la ija por dar e tomar son amigas." "In giving and taking the mother and daughter are friends." The sense of this is obscure.

(16) לה איבי איז לה מאר · אי מי איזו מאל ·

16. "La itschi en la mar e me izo mal." "I threw it into the sea, and it injured me," seems to point to the wisdom of a man keeping his own counsel.

(17) איל ריי איסטא חאזינו · שיך איסלאם ביציוו לה קורה ·

17. "Il re esta hazino, Sheikh Islam bevio la cura." "The King was sick, and the Sheikh ul Islam had to drink the physic," shows that it sometimes happens that subordinates have to act as the scapegoats of those above them.

(18) פוקו מי מאנקה מאיסקטרה · פישיס אי מאנגאס אי ניזגאס ·

18. "Poco, mi manca maestra, pijas e mangas, e nezgas." "But little more is needed, mistress, (only) bands, sleeves, and gussets," i.e., every-thing.

(19) די און דייאה און דייאה · קאזא מי טייאה ·

19. "Di un dia undia, caza mi tia." "From one day to the other my aunt is on the point of marrying," i.e., procrastination is the thief of time.

(20) יא לו סי · די לה אישקני ·

20. "Yo lo se, de la schkenbe." "I know all about it, as about the tripe," is said of persons who pretend to knowledge they do not possess. In connection with the above the story of a young wife who, though perfectly ignorant of cooking, yet always answered, "Yo lo se"—"I know all about it," to an old friend who wished to instruct her, is told. The latter, in revenge, directed her to place some tripe her husband had brought home, on the fire to cook without having first cleaned it. The result, which may be imagined, cured her effectually of saying, "I know all about it" when taught anything.

(21) ציטס אל אזנו · ני פריטו ני בלאנקו ·

21. "Vites al asino? Ni preto ni blanco." "Hast thou seen the ass? Neither a black nor a white one," is the curious answer given to an impertinent questioner.

(22) ציזיטה סין סול · נו אים די קוראסון ·

22. "Visita sin sol, no es di corason." "A visit without sunlight does not come from the heart."

(23) יו קי איסטני קאיינטי · קי סי רייגאן לא גינטי ·

23. "Yo, que este cayente, que se rigan la gente." "As long as I am warm (I care not whether) people laugh," shows a most philosophical (or shall I say cynical?) contempt for public opinion.

(24) שאסטרי חאראגאן · קואנדו פיידרי לה אלגוזא · קואנדו פיידרי איל דידאל ·

24. "Shastre haragan, quando piedre la alguja, quando piedre el didal." "A worthless tailor at one time loses the needle, at another the thimble," i.e., a bad workman blames his tools.

(25) בואין אמאניסיר · סי קונאסי איל בואין דייאה ·

25. "Buen amanser se conosse el buen dia." By a good dawn a good day may be known.

(26) נו סי דיזי קואטרו · סי נו איסטא אל סאקו ·

26. "No se dise quatro, si no esta al sacco." Do not say "four" till they are in the pocket, i.e., do not count your chickens before they are hatched.

(27) מונט גאסטי אי מאל · שבת ·

27. "Muncho gaste e mal shabat." "Many expenses and yet a bad Sabbath."

(28) קין נו טייני לא אירמוזה · ביזא לא מוקוזה ·

28. "Quen no tiene la ermoza, beza la mokosa." He who has not got the pretty one kisses the ugly one.

(29) לה לאבאנדירה איזו חיל לאבאדו · לה בוליסה סי קאנסו ·

29. "La Lavandera iso el lavada, la bolisa se kanso." "The laundress does the washing; the mistress of the house is fatigued," or in other words, "those in a high position, as a rule, take the credit which is due to those below them for good work done".

(30) אליבאנטה לה קחבסו די חיל קוליבדו · אי נו די בן אדם ·

30. "Alevanta la cavessa de el colevra, e no de Ben Adam." "Raise the head of a serpent, but not that of a human being," is the Judeo-Spanish equivalent to the German "Undank ist der Welt Lohn," i.e. "The world's reward is ingratitude."

The same sentiment is expressed in the following proverb (31)—

(31) אזיר ביין קון חיל מאלו · ני מירסיד ני גראדו ·

31. "Azer bien con el malo, ni merged ni grado." "To do good to the evil is a thankless and ungrateful task."

(32) די חיל דזיר אל אזיר · קומו לה נגני אל אמאניסיר ·

32. "De el dezir al azir, como la noche al amansir." "Between 'saying' and 'doing' there is a difference as great as between night and day break." "Deeds, not words."

(33) לו קי לה בייזה קרייאה · אינטרי סונייוס לי ציניאה ·

33. "Lo que la vieja keria, entre soenios le venia." "That which the old woman desired happened to her in a dream," or, "The wish is father of the thought."

(34) טודו לו קי ארילומברה נו אים אורו ·

34. "Todo lo que arelombra no es oro." "All that glitters is not gold."

(35) חיל מארדו ארמפי חיל צאזו · אי לה קולפה אים לה מוזיר ·

35. "El marido arrompe el vaso, è la culpa es la mojer." "The husband breaks the vessel, but it is the wife's fault."

(36) קין באטאייה לה פואירגה · אוי סו ריפואיסטה ·

36. "Quen batia a puerta, oie su ripoesta." "He who knocks at the door will hear his answer," equivalent to the German "Wie man in den Wald hinein schreiet, so hallt es wieder heraus." "As one shouts into the wood so it echoes back."

(37) מי ציזנה מי דיזיאנרו אונה צין · ליו דוס אי טרים ·

37. "Mi vicina me disonero una vez, lio, dos e tres." "My neighbour (fem.) insulted me once, I will insult her twice and thrice," is the expression of a spirit thoroughly vindictive.

(38) סי חיל אימפריסטיו חירה בואינו · קאדה חונו אינפריסטאנה  
חסו מוזיר ·

38. "Si el imprestemo era bueno, cada uno enprestava a su mujer."  
Were it a good thing to lend, everybody would lend to his own wife.

(39) מי חזיקו · מי חנאקיתו ·

39. "Mi iziko, mi izikito." "My little son, my wee little son," "Every mother's goose is a swan;" or, "Mi iziko, mi atchakitiko." "My little son, my little excuse."

## NOTES ON DR. POST'S PALMYRENE INSCRIPTIONS.

BY REV. J. E. HANAUER.

THE following notes are based upon a comparison of the 40 Palmyrene inscriptions, figured, transliterated, and translated, &c., by Prof. Euting, in his "Epigraphische Miscellen" (Sitzungs-Berichte der Königlich-Preussischen Akademie der Wissenschaften zu Berlin), 1885, with the five inscriptions reproduced on page 36 of the *Quarterly Statement* for January, 1891 :—

(A.)

	<i>Transliteration.</i>	<i>Translation.</i>
1st line ....	ע ? ?	'A ? ?
2nd ,, ....	מקום (ו)	Moquim (u).
3rd ,, ....	זדי בת (ברת)	Zaydi, daughter of.
4th ,, ...	מהו (ע ?)	'Amhu (his or their ?) (kinsman or uncle).

In the first line I am not able to read more than the one letter ע. I do not know what letters the two other characters represent. The second line contains one word מקום, a name that seems to be pretty common in Palmyrene texts. It occurs in Prof. Euting's No. 22, Plate VIII, and also in his Nos. 42 and 43, Plate IX. The third line contains two words, the first of which, זדי, is a name still used amongst the fellahât of Palestine, whilst the next word is the word בת, Hebrew for daughter. This form also occurs in Euting's No. 25, Plate IX, though the form more frequently met with seems to be ברת (*see* Euting's Nos. 5, 6, 18, 22, 23). The construct state, whether the word be ברת or בת, requires to be followed by a noun. I am not sure whether מ, the first character on the fourth line, is equivalent to ע, as it is in Phœnician and Samaritan. Assuming it to be so, then the word עמהו, 'Amhu, is either

a name, or identical with the Arabic **عمه**, which really means "uncle," though I find it is often used in Jerusalem in the sense of "kinsman." When speaking to me of my own father-in-law, for instance, natives constantly use the word **عمك**, literally, "thy uncle." I cannot help thinking that, as at the end of B, C, D, respectively, we have the word **אחיה** = **אחיה**, marking their position in the family as "brother," so in this case **בת עמהו** shows the lady to have been "an uncle's daughter" = cousin.

## (B.)

*Transliteration.**Translation.*

1st line ....	<b>נבו זרי בר</b>	Nebo Zari (Nebo is my prince),
2nd ,, ....	<b>בר נבו אחיהם</b>	son of Bar Nebo, their brother.

The word **נבו** = **נבו** = Nebo, occurs in Prof. Euting's inscription (No. 4, Plate VII) discovered in the vicinity of the well-preserved temple (said to be of Diocletian) at Damascus by Herr Luettecke, Imperial German Vice-Consul, in March, 1883. In that inscription **נבו** forms part of the name **נבו זרי** = Zabd-Nebo. Nebo-Zari (Nebo, or Mercury, is my prince) suggests my mentioning another name, that of **בל שורי** = **בל שורי** = Bel-Suri (or Bel is my wall), in Euting's No. 8, Plate VIII, as analogous in form. **נבו** is clearly **בר**, that is, "Son." It is found in each one of Euting's inscriptions numbered respectively 4, 5, 6, 7, 8, 13, 19, 20, 21, 22, 24, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36. As it is repeated in C, D, and E, I need say no more about it.

The last word, **אחיהם** = **אחיהם**, occurs, but without the final **ם**, sign of the 3rd person plural, also in C and D, as well as in Prof. Euting's above-mentioned inscription No. 4 from Damascus, and also in his No. 34, Plate IX. We now come to Prof. Post's Inscription C.

## (C.)

*Transliteration.**Translation.*

1st line ....	<b>בר נבו בר בר נבו</b>	Bar Nebo, son of Bar Nebo
2nd line ....	<b>אחיהם</b>	(i.e., grandson of Nebo, his or their brother).

The last word, **אחיהם** = **אחיהם**, occurs in exactly the same form in Prof. Euting's No. 4, and his translation reads "seines Bruders (oder seiner Brueder)," his brother's (or his brethen's).

Bar Bar Nebo = the son of the son of Nebo.

(D.)

	<i>Transliteration.</i>	<i>Translation.</i>
1st line ....	בר התה בר	Bar Hth (H.T.H.), son of Bar
2nd line ....	בר נבו אחא	Nebo (or grandson of Nebo) (their?) brother.

I have no remark to make on D.

(E.)

	<i>Transliteration.</i>	<i>Translation.</i>
1st line ...	מברדת	Mbrdt. (M.B.R.D.T.), (possibly a
2nd line ....	בר בר נבו בר	name) of Bar Bar Nebo, Bar Bar
3rd ,, ....	בר נבו	Nebo (son of Bar Nebo, son of Bar Nebo, or, son of the son of Nebo, son of the son of Nebo).

מברדת, Mbrdt, *may, possibly*, be a name, though I do not think it is. The root is ברד, hail, cold, &c. The form מברדת is not to be found in any lexicon to which I have access. It is certainly not either in Gesenius or Buxtorff. In Arabic, however, we have a noun spelt in exactly the same manner, viz., مَبْرَدَة, plural مَبْرَدَات, and meaning a refreshing or cooling drink. As Dr. Post's Inscription E is the legend attached to the picture of a man taking his ease, and holding a drinking vessel in his left hand, I am very strongly of opinion that the inscription simply gives the title or subject of that picture, viz. :—The Refreshment of Bar Bar Nebo, &c., or Bar Bar Nebo enjoying himself. I trust the above notes may prove interesting to readers of the *Quarterly Statement*, and that the Editor will kindly allow them a place in the next issue.

JERUSALEM,

February 4th, 1891.

### THE LACHISH INSCRIPTION.<sup>1</sup>

As I stated last summer in the "Academy," the inscription on the piece of pottery discovered by Mr. Petrie, at Tel el-Hesy, reads לסמך, *le-samech*, from *samak*, "to uphold," and must be translated "belonging to Samech." We find the name Semachiah in 1 Chr. xxvi, 7. The shape of the letter *samech* is interesting, as it presents us with the oldest form of the letter in the alphabet of Israel hitherto known.

A. H. SAYCE.

Another well-known Semitic scholar writes :—

The inscription seems to read להמך, *i.e.*, dedicated or belonging to

<sup>1</sup> *Quarterly Statement*, 1891, page 70.

*h m k.* Whether *h m k* is a name of a divinity or of an owner I cannot decide. I do not know of another instance of this name. If you will give my transcription in the journal please do not mention my name. Anyone could have given you the transcription and there is no merit of mine.

## ENTRANCE TO THE HOLY SEPULCHRE.

By WILLIAM SIMPSON, M.R.A.S.

I AM under the impression that no sketch of the Entrance to the Holy Sepulchre has appeared in any of the Palestine Exploration Fund's



publications ; so I have copied out a rough one I made in 1869, which

is taken from inside the sepulchre. It was M. Clermont Ganneau that first called attention to the importance of the fact that the tombs at the west of the Holy Sepulchre were *Kokim* tombs, and from that he pointed out that the spot was in all probability an old Jewish place of sepulchre. The sketch given with this, shows that the Holy Sepulchre itself was also a *Kok*, for the doorway still retains the form of the opening of one of these Jewish tombs. As it is only lately that the distinction between *oculus* and *Kok* has been arrived at, its value as an indication of antiquity was not likely to have occurred since the time of Constantine, hence the unlikelihood that anyone at a later date has imitated the older form. I have read statements that the original rock of the tomb can still be seen in some part of the entrance ; but these affirmations always appeared as if they required to be authenticated. Surely some one on the spot could do this. The *Kokim* tombs on the west of the Holy Sepulchre have no ledges in them ; this would tend to the suggestion that the ledge in the Holy Sepulchre may have been excavated, and perhaps this was done to form it into an altar, for Mass was at one time celebrated upon it. Some have supposed that there is a trough, under the marble slab, which formed the real tomb.

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## IRRIGATION AND WATER SUPPLY IN PALESTINE.

By WILLIAM SIMPSON, M.R.A.S.

FROM what I have learned regarding the pits in the Vale of Siddim, the conclusion appears to be, that whatever they may have originally been, they were no part of a *Karaize*. From calling attention to them some important information has, as a result, been brought forward. Mr. Gray Hill's letter describes what is almost certain to be a *Karaize* at El Beda, near Palmyra, which is also described in his book, "With the Beduins," p. 159 ; and his account of the newly discovered source of water in Palmyra is also most probably an aqueduct of the same kind. In the Wâdy Byâr, south of Solomon's Pools, there is a rock-cut conduit which is several feet below the surface, and in its construction shafts were sunk at a number of places, thus realising the exact idea of a *Karaize*. These shafts are marked on the large map, and the description of them will be found in Sir Charles Wilson's paper on "The Water Supply of Jerusalem." It is seldom that these conduits were cut through the rock, but in my former communication I mentioned one at Hada, near Jellalabad. My attention has also been called to some very ancient conduits at Lake Copais in Bœotia. Operations have been going on there for some years back to drain the lake, but it would seem that attempts of the same kind had been made before the time of Alexander the Great. It is said that there are natural channels under

the hills to which the name *Katavóthra* had been given, but as these were not sufficient a number of *emissarii*, or tunnels, were made to carry off the water, one of which is nearly 4 miles long, and it has about 20 vertical shafts, which are now choked up, but they are supposed to be about 100 or 150 feet deep. Crates attempted to clear out these conduits in the time of Alexander the Great, so that they must be of considerable antiquity. Perhaps other explorers may be able to supply further details, but the data seems already sufficient to establish the point, that the *Karaize* as a means of water supply has existed from a remote period over the wide space from Afghanistan to the Mediterranean.

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## PITS IN THE SHITTIM PLAIN.

By REV. JAMES NEIL, M.A.

FOR Dr. Selah Merrill's information, let me say that the journey on which I discovered these pits was arranged by a representative of the German Consulate at Jerusalem and the German Chaplain, Pastor Weser, to investigate the claims of the Shapira pottery, and to carry on excavations for this purpose on the highlands of Moab. Pastor Weser begged me, as the English Chaplain at Jerusalem, to accompany the expedition to see fair play, because the English savans from the first regarded the Shapira pottery as spurious. I had, indeed—very fortunately, as I now know—to “go far out” of my “way.” The ferry in the neighbourhood of Jericho was broken, and we were compelled to ride some 18 miles up the west of the Jordan Valley to the ferry opposite *Tell Damieh*, and the same distance down the east of the Valley to Ali Diab's camp, then in the Plain of Shittim, near *Tell Keferein*. Later on we had to return the same way, so that I rode twice past these lines of pits. On my return I mentioned my discovery to Major Conder and Mr. Drake, and they told me that they had just found similar pits in the neighbourhood of *Ain Fusail*, but it now appears that they were rock-cut cisterns, or *beers*.

I did not take special and accurate measurements of the pits, nor have I said that I did. In my descriptions I have very naturally adopted those published by the “American Palestine Exploration Society's Fourth Statement,” January, 1877. Let me again refer the readers of the “Quarterly” to my careful treatment of the whole subject in an article on “The Site of the Cities of the Plain and the ‘Pits’ of the Vale of Siddim,” in the “Theological Monthly,” May, 1890 (Messrs. J. Nisbet and Co.), in which I have given Dr. Selah Merrill credit for his very interesting and valuable identification of the probable sites of the Cities of the Plain, now so remarkably confirmed by my discovery of the

"water-pits of earth," *בְּאֵרוֹת חֵמֶר*, of which the valley to the north of these five cities was full (Genesis xiv, 10).

Dr. Selah Merrill says in his original report, "What those pits (the slime pits of Genesis xiv, 10) were I do not know, nor do I know the object of the pits which at present exist." In the last "Quarterly" he says, "my impression was these pits were used for military purposes." Now these two statements are, no doubt, to be reconciled by the account of the legend which the Bedaween told him, and which Sheikh Goblan in part told me, as to the adventures of the fabulous Sheikh Zeer, for at its close he tells us, "this legend seems to indicate clearly that the pits were for military purposes." But I should like to remind Dr. Selah Merrill of what he tells us about this familiar story of their folk lore: "After a while he (Sheikh Zeer) tried to get his dominions back, and made war upon his own people for that purpose. They dug these pits *expecting that he would fall into them and be killed. He fell in but his nephew rescued him,*" &c

Now what meaning would this have, or what shadow of foundation in fact, if the pits, as the archeologist of the American Palestine Exploration Society would lead us to suppose, were but some 3 to 6 feet only in depth? But all will see, if they were formerly *Karaize* pits, or deep wells, how forcible and natural is the allusion to the falling in with risk of being killed, and to the need of being rescued from without.

The complete and conclusive answer to Dr. Selah Merrill's supposed difficulties as to whence came the materials by which the pits were filled up, and as to how the rims of the basin-like mounds around them could still remain to the height of a few feet, lies in the fact that the appearances now presented by these three lines of pits are precisely the same as those presented by the ruins of the *Karaize* system in the desert beyond Damascus, on the way to Palmyra—so much so that I instantly recognised them—and that they are like nothing else!

Can Dr. Selah Merrill be serious when he says, as a reason why these pits were not wanted for irrigation purposes, "Canals to-day carry water south of the stream (*Wady Nimrin*), and were water ever wanted north of it why would it not be carried thither in the same way?" Simply because the Jordan valley falls to the south and rises towards the north! He says, hypothetically and doubtfully, "were water ever wanted north of it." Why the want of water in that waste wilderness is woeful. It is for some 10 miles one of the most arid spots in Palestine, and that is saying a good deal. It is, moreover, one of the hottest and most rainless regions. I shall never forget how I suffered from thirst on the burning day when I traversed it first *en route* from *Tell Damieh* to *Nimrin*—a thirst and incipient fever which the Arabs of our escort sought vainly to assuage by giving us to chew the stalk and leaves of a succulent plant which they scoured the country far and wide to secure.

Excavations should certainly be made at this spot when the first opportunity offers, for if the channel at the bottom proves to be cemented, which, however, is very doubtful (see my discussion of this in my article in the May, 1890, "Theological Monthly"), the matter will be at once set at rest. But in any case we may hope to find evidence of the filling up of the *Karaize* pits, which I have no doubt whatever existed here in ancient times, not only in the three rows, of which ruins now remain, but also in many more crossing one below the other, as we know they do at the present day on the plains of Damascus. If I am right, where the lines of pits end on the east side near the hills, or where if extended a little further they would end, by digging we should come to water, and this again would be a certain proof.

I say *solvitur explorando* ; and now let our Fund get to work at the first opportunity. We could engage in few more inexpensive, interesting, and important excavations. Think of finding pits *in situ* mentioned as existing 4,000 years ago !

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## COMPARISON OF THE HIGHEST AND LOWEST TEMPERATURES OF THE AIR, AND RANGE OF TEMPERATURE IN PALESTINE AND IN ENGLAND IN THE TEN YEARS ENDING 1889.

By JAMES GLAISHER, F.R.S.

THE observations at Sarona were taken by Herr J. Dreher, the instruments were made by Negretti and Zambra, and examined by myself.

The observations at Blackheath were taken during the same ten years, by instruments of a similar construction to those at Sarona, by myself.

TABLE I. shows the Highest Temperature of the Air at *Savona* in every Month.

Months.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	63·0	80·0	72·0	78·0	71·0	70·0	70·0	78·0	76·0	72·0	73·0
February..	78·0	75·0	81·0	72·0	65·0	73·0	82·0	77·0	78·0	80·0	76·1
March ..	83·0	87·0	82·0	97·0	79·0	90·0	83·0	89·0	98·0	97·0	88·5
April ..	94·0	96·0	89·0	95·0	97·0	90·0	90·0	97·0	91·0	102·0	94·1
May ..	103·0	99·0	88·0	99·0	98·0	103·0	86·0	98·0	97·0	100·0	97·1
June ..	91·0	96·0	84·0	89·0	97·0	93·0	112·0	89·0	89·0	100·0	94·0
July ..	92·0	89·0	87·0	88·0	96·0	88·0	89·0	89·0	93·0	92·0	90·3
August ..	91·0	106·0	89·0	92·0	90·0	91·0	91·0	92·0	91·0	90·0	92·3
September	102·0	92·0	92·0	106·0	86·0	94·0	94·0	90·0	90·0	90·0	93·6
October ..	96·0	89·0	92·0	94·0	100·0	98·0	96·0	100·0	105·0	98·0	96·8
November	96·0	89·0	93·0	84·0	79·0	84·0	85·0	82·0	80·0	86·0	85·6
December	77·0	72·0	77·0	76·0	82·0	80·0	81·0	76·0	75·0	82·0	77·8
Means ..	88·8	89·2	88·5	89·2	86·7	87·8	88·2	88·1	88·6	90·8	88·3

By looking over this table, it will be seen that the temperature of the air has reached or exceeded  $100^{\circ}$  in every year, excepting 1882. The highest temperature was —

In 1880, on May 23rd	....	....	....	....	....	$103^{\circ}$
1881 „ Aug. 27th	....	....	....	....	....	106
1882 „ Nov. 1st	....	....	....	....	....	93
1883 „ Sept. 30th	....	....	....	....	....	106
1884 „ Oct. 16th	....	....	....	....	....	100
1885 „ May 23rd	....	....	....	....	....	103
1886 „ June 15th	....	....	....	....	....	112
1887 „ Oct. 29th	....	....	....	....	....	100
1888 „ Oct. 19th	....	....	....	....	....	105
1889 „ April 20th	....	....	....	....	....	102

Thus the maximum temperature of the year has occurred—

Once in April.

Twice in May.

Once in June.

Once in August.

Once in September.

Three times in October.

Once in November.

In the year 1880 the temperature on May 22nd was  $102^{\circ}$ , and on September 6th it was  $102^{\circ}$ .

In the year—

1885, on May 10th, the temperature was ....	$102^{\circ}$
1886 „ June 14th „ „ ....	103
1888 „ October 17th „ „ ....	102
1888 „ October 18th ....	104
1889 „ May 10th ....	100
1889 „ June 8th ....	100

Thus in ten years the temperature has been  $100^{\circ}$ , or more than  $100^{\circ}$  on 17 different days; the highest of all was  $112^{\circ}$  in 1887, on June 15th. The months in which the temperature has always been less than  $100^{\circ}$  are January, February, March, July, November, and December.

It reached or exceeded  $90^{\circ}$ , in the year—

1880	....	....	....	....	....	on 36 days.
1881	....	....	....	....	....	„ 27 „
1882	....	....	....	....	....	„ 8 „
1883	....	....	....	....	....	„ 16 „
1884	....	....	....	....	....	„ 14 „
1885	....	....	....	....	....	„ 24 „
1886	....	....	....	....	....	„ 16 „
1887	....	....	....	....	....	„ 25 „
1888	....	....	....	....	....	„ 39 „
1889	....	....	....	....	....	„ 31 „

or in 10 years the temperature has reached or exceeded  $90^{\circ}$  on 236 days.

TABLE II. shows the Highest Temperature of the Air at *Blackheath* in every month.

Months.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	54.5	48.0	52.5	54.0	54.5	52.0	50.5	51.5	51.0	53.5	52.2
February..	53.9	52.1	54.5	53.5	56.5	57.5	46.0	52.0	50.5	56.0	53.3
March ..	66.0	59.8	65.0	54.3	68.4	58.0	60.0	56.5	56.0	58.0	60.2
April .	67.8	67.6	65.0	69.5	69.0	72.5	65.5	63.5	66.0	65.1	67.2
May ..	87.2	76.2	75.0	81.0	81.0	75.8	74.5	69.2	77.7	83.0	78.1
June ..	80.3	81.6	74.0	84.0	82.0	86.8	79.8	82.6	84.5	84.5	82.0
July ..	78.5	94.0	78.0	85.0	86.5	87.1	86.8	90.0	75.0	80.0	84.1
August ..	81.3	84.3	81.0	84.0	91.0	77.5	86.5	86.2	86.0	86.0	84.4
September.	87.5	71.0	71.0	75.2	83.0	74.5	83.5	69.0	72.0	79.1	76.6
October ..	65.0	62.5	71.0	64.8	62.0	59.0	75.5	61.0	67.1	62.0	65.0
November	57.6	61.5	60.0	55.5	60.0	57.5	58.5	51.2	59.0	58.8	58.0
December .	55.8	52.0	56.0	53.5	54.5	49.2	54.0	50.5	57.0	53.0	53.6
Means ..	69.6	67.6	66.9	67.9	70.7	67.3	68.4	65.3	66.8	68.3	67.9

The highest temperature of the air at Blackheath was—

In 1880, in September....	87.5	being	15.5	less	than	maximum	at	Sarona.
1881 „ July	....	94.0	„	12.0	„	„	„	„
1882 „ August	....	81.0	„	12.0	„	„	„	„
1883 „ July	....	85.0	„	21.0	„	„	„	„
1884 „ August	....	91.0	„	9.0	„	„	„	„
1885 „ July	....	87.1	„	15.9	„	„	„	„
1886 „ July	....	86.8	„	25.2	„	„	„	„
1887 „ July	....	90.0	„	10.0	„	„	„	„
1888 „ August	....	86.0	„	19.0	„	„	„	„
1889 „ August	....	86.0	„	16.0	„	„	„	„

Thus the maximum temperature at Blackheath has occurred—

Five times in July.

Four „ August.

Once „ September.

In the 10 years the temperature has reached 90° on 3 days only, the highest was 94° in July, 1881. The lowest maximum at Sarona was 93° in 1882, and the lowest maximum at Blackheath was 81° in the same year; the highest maximum at Sarona was in 1886.

By comparing the numbers in Tables I. and II. together, month by month, it will be found that with the exception of three months, the numbers in Table I. are larger than in Table II. The exceptions are July, 1881, when the temperature at Blackheath was higher by 5°, than at Sarona, August, 1884, and July, 1887, when at Blackheath the temperature was higher by 1° in both instances.

At Sarona the maximum temperature in relation to that at Blackheath was, in—

January	8.5	in excess in	1880,	varied to	26.5	in excess in	1887
February	9.5	„	1884	„	36.0	„	1886
March	10.6	„	1884	„	42.7	„	1883
April	17.5	„	1885	„	36.9	„	1889
May	11.5	„	1886	„	28.8	„	1887
June	4.5	„	1888	„	32.2	„	1886
July	5.0	in defect	1881	„	18.0	„	1888
August	1.0	„	1884	„	21.7	„	1881
September	3.0	in excess in	1884	„	30.8	„	1883
October	20.5	„	1886	„	39.0	„	1885-87
November	19.0	„	1884	„	38.4	„	1880
December	18.0	„	1888	„	30.8	„	1885

The greatest differences are in the winter months, the largest 42.7°

is in March, the next in order are October and November; the least differences are in July and August.

The mean of the 10 differences in each month, show the mean excess over Blackheath maximum temperature in—

January	....	....	....	....	was 20 <sup>o</sup> ·8
February	....	....	....	....	„ 22·8
March ....	....	....	....	....	„ 28·3
April ....	....	....	....	....	„ 26·9
May ....	....	....	....	....	„ 19·0
June ....	....	....	....	....	„ 12·0
July ....	....	....	....	....	„ 6·2
August...	....	....	....	....	„ 7·9
September	....	....	....	....	„ 17·0
October....	....	....	....	....	„ 31·8
November	....	....	....	....	„ 27·6
December	....	....	....	....	„ 24·2

and these numbers are the same as the differences between the numbers in the last column of Tables I. and II.

TABLE III. shows the Lowest Temperature of the Air at *Savona* in every month.

Month.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	32.0	40.0	34.0	39.0	32.0	40.0	43.0	32.5	37.0	42.0	37.2
February..	32.0	41.0	37.0	41.0	41.0	42.0	43.0	37.0	42.0	41.0	39.7
March ..	34.0	40.0	37.0	35.0	42.0	33.0	39.0	37.0	40.0	42.0	38.4
April ..	41.0	47.0	45.0	40.0	46.0	45.0	42.0	43.0	48.0	44.0	44.1
May ..	50.0	48.0	47.0	48.0	49.0	53.0	48.0	45.0	52.0	50.0	49.0
June ..	55.0	53.0	51.0	59.0	58.0	58.0	57.0	58.0	56.0	59.0	56.5
July ..	63.0	60.0	60.0	63.0	61.0	63.0	61.0	62.0	61.0	65.0	62.5
August ..	66.0	67.0	64.0	65.0	63.0	65.0	65.0	64.0	65.0	67.0	65.1
September	57.0	63.0	57.0	58.0	61.0	61.0	59.0	61.0	63.0	62.0	60.5
October ..	57.0	51.0	53.0	53.0	55.0	51.0	55.0	57.0	58.0	56.0	54.9
November	52.0	49.0	46.0	49.0	47.0	48.0	49.0	52.0	41.0	40.0	47.3
December	44.0	39.0	40.0	40.0	38.0	43.0	37.0	46.0	40.0	38.0	40.5
Means ..	48.6	50.1	47.6	49.3	49.3	51.1	49.8	49.5	50.5	50.5	49.5

The lowest temperature in the year—

1880	....	was	32°	in January and February.
1881	....	„	39	„ December.
1882	....	„	34	„ January.
1883	....	„	35	„ March.
1884	....	„	32	„ January.
1885	....	„	38	„ March.
1886	....	„	37	„ December.
1887	....	„	32·5	„ January.
1888	....	„	37	„ January.
1889	....	„	38	„ December.

Thus the lowest temperature at Sarona has occurred—

Five times in January.

Twice in March.

Three times in December.

The lowest in the 10 years was 32°, and this occurred five times, viz., 1880, January 29th and 30th; 1880, February 6th; and 1884, January 22nd and 24th.

The temperature was below 40° in the year—

1880	....	....	....	on 13 nights.
1881	....	....	....	„ 2 „
1882	....	....	....	„ 13 „
1883	....	....	....	„ 2 „
1884	....	....	....	„ 9 „
1885	....	....	....	„ 3 „
1886	....	....	....	„ 3 „
1887	....	....	....	„ 15 „
1888	....	....	....	„ 2 „
1889	....	....	....	„ 3 „

or in 10 years the temperature on 65 nights has been below 40°.

By taking the difference between the lowest and highest temperature in each year, the range was—

In 1880	....	....	....	....	71
1881	....	....	....	....	67
1882	....	....	....	....	59
1883	....	....	....	....	71
1884	....	....	....	....	68
1885	....	....	....	....	65
1886	....	....	....	....	75
1887	....	....	....	....	67½
1888	....	....	....	....	68
1889	....	....	....	....	64

The largest range, 75°, was, in 1886; the next in order was 71° in 1880 and 1883. The smallest was 59° in 1882, the next in order 64° in 1889. The mean annual range of the 10 years was 67½°.

TABLE IV. shows the Lowest Temperature of the Air at *Blackheath* in every month.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	15·0	15·0	27·5	29·2	31·0	22·5	15·0	16·0	20·3	19·0	21·0
February..	23·3	28·2	26·0	31·9	29·0	26·0	20·0	19·5	17·0	17·2	23·8
March ..	27·0	24·2	30·0	24·0	27·5	25·0	20·1	22·0	23·5	17·0	24·0
April ..	33·1	29·5	36·0	31·3	30·0	28·5	31·5	25·8	25·5	31·8	30·3
May ..	31·9	34·0	38·0	32·5	36·1	31·5	30·3	32·3	34·5	39·8	34·1
June ..	38·9	39·7	42·5	42·5	44·5	41·2	39·8	43·0	45·0	45·5	42·3
July ..	45·0	45·5	48·0	44·5	48·9	47·5	45·7	45·5	42·0	46·5	45·9
August ..	46·5	45·0	48·0	47·4	46·0	43·0	46·5	42·0	44·0	42·8	45·1
September	41·5	41·0	37·5	53·5	43·8	35·5	40·8	33·0	40·2	35·0	40·2
October ..	28·8	28·5	32·3	37·0	35·0	32·0	38·0	24·0	26·3	33·5	31·5
November	25·0	31·0	26·0	29·0	25·2	27·5	27·2	21·2	31·2	26·2	27·0
December	27·8	24·0	24·0	29·0	27·5	21·0	18·0	23·0	24·0	21·2	24·0
Means ..	32·0	32·1	34·6	37·7	35·4	31·8	31·1	28·9	31·1	31·3	32·4

The lowest temperature of the air at Blackheath —

In 1880 was	January ....	15°0, being 17° lower than at Sarona.
1881 „	January ....	15°0 „ 24 „ „
1882 „	December....	24°0 „ 10 „ „
1883 „	March ....	24°0 „ 11 „ „
1884 „	November	25°2 „ 6°8 „ „
1885 „	December....	21°0 „ 17°0 „ „
1886 „	January ....	15°0 „ 22°0 „ „
1887 „	January ....	16°0 „ 16°5 „ „
1888 „	February ....	17°0 „ 20°0 „ „
1889 „	March ....	17°0 „ 21°0 „ „

Thus the minimum temperature at Blackheath has occurred —

Four times in January.

Once in February.

Twice in March.

Once in November.

Twice in December.

In the 10 years the temperature has been as low as 15° on three occasions, all in January; once the reading was 16° in January, and twice 17°, once in February and once in March.

By comparing the numbers in Tables III. and IV. it will be seen that without exception, those at Sarona, Table III., are all larger than those at Blackheath on Table IV. The excess in—

January	has varied from	1°0 in 1884 to 28°0 in 1886.
February	„	8°7 „ 1880 „ 25°0 „ 1888.
March	„	7°0 „ 1880 „ 25°0 „ 1889.
April	„	7°9 „ 1880 „ 22°5 „ 1888.
May	„	9°0 „ 1882 „ 21°5 „ 1885.
June	„	8°5 „ 1882 „ 17°2 „ 1886.
July	„	11°5 „ 1881 „ 22°0 „ 1888.
August	„	16°0 „ 1882 „ 24°2 „ 1889.
September	„	4°5 „ 1883 „ 28°5 „ 1885.
October	„	16°0 „ 1885 „ 33°0 „ 1887.
November	„	9°8 „ 1888 „ 31°8 „ 1887.
December	„	2°0 „ 1889 „ 23°0 „ 1887.

The greatest difference are in the winter months; the largest, 33°0, in October, the next in order, 31°8, in November.

The mean of the 10 differences show the mean excess in each month over the minimum at Blackheath are—

January	....	....	....	....	....	16 <sup>o</sup> ·2
February	....	....	....	....	....	15·9
March	....	....	....	....	....	14·4
April	....	....	....	....	....	13·8
May	....	....	....	....	....	14·9
June	...	....	....	....	....	14·2
July	....	....	....	....	....	16·6
August	....	....	....	....	....	19·0
September	....	....	....	....	..	20·3
October	....	....	....	....	....	23·4
November	....	....	....	....	....	20·3
December	....	....	....	....	....	16·5

These numbers agree with the differences between the numbers in the last column of the two preceding tables.

TABLE V. shows Extreme Monthly Range at *Nacoma* in every month.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	31.0	10.0	38.0	39.0	39.0	30.0	27.0	45.5	39.0	30.0	35.9
February..	46.0	34.0	44.0	31.0	24.0	31.0	39.0	40.0	36.0	39.0	36.4
March ..	49.0	47.0	45.0	62.0	37.0	52.0	44.0	52.0	58.0	55.0	50.1
April ..	53.0	49.0	44.0	55.0	51.0	45.0	48.0	54.0	43.0	58.0	50.0
May ..	53.0	51.0	41.0	51.0	49.0	50.0	38.0	53.0	45.0	50.0	48.1
June ..	36.0	43.0	33.0	30.0	39.0	35.0	55.0	31.0	33.0	41.0	37.6
July ..	29.0	29.0	27.0	25.0	35.0	22.0	28.0	27.0	29.0	27.0	27.8
August ..	25.0	39.0	25.0	27.0	27.0	26.0	26.0	28.0	26.0	23.0	27.2
September	45.0	29.0	35.0	48.0	25.0	30.0	35.0	29.0	27.0	28.0	32.1
October ..	39.0	35.0	39.0	41.0	45.0	47.0	41.0	43.0	47.0	42.0	41.9
November	44.0	40.0	47.0	35.0	32.0	36.0	36.0	30.0	39.0	46.0	38.5
December	33.0	33.0	37.0	36.0	44.0	37.0	44.0	30.0	35.0	44.0	37.3
Means ..	40.2	39.1	37.9	40.0	37.3	36.7	38.4	38.5	38.1	40.3	38.6

These ranges, excepting in the month of June to September are generally large, the least and greatest range in each month are as follows :—

The smallest was		The largest was	
In January	27	in 1886	45·5
February	24	1884	46·0
March	37	1884	62·0
April	43	1888	55·0
May	38	1886	53·0
June	30	1883	55·0
July	22	1885	35·0
August	23	1889	39·0
September	25	1884	48·0
October	35	1881	47·0
November	30	1887	47·0
December	30	1887	44·0
			1889.

The smallest range in the month was 22° in July, 1885, and the largest was 62° in March, 1883.

TABLE VI. shows Extreme Monthly Range at *Blackheath* in every month.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	39.5	33.0	25.0	24.8	23.5	29.5	35.5	35.5	30.7	34.5	31.2
February..	30.6	23.9	28.5	21.6	27.5	31.5	26.0	32.5	33.5	38.8	29.4
March ..	39.0	35.6	35.0	30.3	40.9	33.0	30.9	34.5	32.5	41.0	36.2
April ..	34.7	38.1	31.0	38.3	30.0	44.0	34.0	37.7	40.5	33.3	37.1
May ..	55.3	42.2	37.0	48.5	44.9	44.3	44.2	36.9	43.2	43.2	44.0
June ..	41.4	41.9	31.5	41.5	37.5	45.6	40.0	39.6	39.5	49.0	39.8
July ..	33.5	48.5	30.0	40.5	37.6	39.6	41.1	44.5	33.0	33.5	38.2
August ..	34.8	39.3	33.0	36.6	45.0	34.5	40.0	44.2	42.0	43.2	39.3
September	46.0	30.0	33.5	21.7	39.2	30.0	42.7	36.0	31.8	44.1	36.4
October ..	36.2	34.0	38.7	27.8	27.0	27.0	37.5	37.0	40.8	28.5	33.5
November.	32.6	30.5	34.0	29.5	34.8	30.0	31.3	30.0	27.8	32.6	31.0
December.	28.0	28.0	32.0	24.5	27.0	28.2	36.0	27.5	33.0	31.8	29.6
Means ..	37.6	35.4	32.4	31.2	35.3	35.5	37.4	36.3	35.7	37.0	35.5

	the smallest was		the largest was
In January	.... 23.5 in 1884	....	and 39.5 in 1880
February	.... 21.6 „ 1883	....	„ 38.8 „ 1889
March ....	.... 30.3 „ 1883	..	„ 41.0 „ 1889
April ....	.... 31.0 „ 1882	....	„ 44.0 „ 1885
May ....	.... 36.9 „ 1887	..	„ 55.3 „ 1880
June ....	.... 31.5 „ 1882	....	„ 45.6 „ 1885
July ....	.... 30.0 „ 1882	....	„ 48.5 „ 1881
August....	.... 33.0 „ 1882	....	„ 45.0 „ 1884
September	... 21.7 „ 1883	....	„ 46.0 „ 1880
October	.... 27.0 „ 1884 and 1885	..	„ 40.8 „ 1888
November	.... 26.5 „ 1883	....	„ 34.8 „ 1884
December	.... 24.5 „ 1883	....	„ 36.0 „ 1886

These least ranges are all smaller than those at Sarona, excepting in the months of June to September, when they are larger at Blackheath. The largest ranges at Sarona are all greater than at Blackheath, excepting those in May, July, and August.

By comparing the ranges in Tables V. and VI., it will be seen that the ranges at Sarona, in respect to the ranges at Blackheath, were in—

January, larger, excepting in 1880 and 1886.
February „ „ 1884 „ 1885.
March „ „ 1884.
April „ without exception.
May „ excepting in 1880 and 1886.
June, smaller, excepting in 1881, 1882, 1884, 1886, and 1889.
July „ without exception.
August „ „
September, smaller, excepting in 1882 and 1883.
October, larger, without exception.
November „ excepting in 1884, and was the same in 1887.
December „ without exception.

By taking the differences between the numbers on the last column of Tables V. and VI. the mean difference of range in each month is found, and is at Sarona in—

January, larger than at Blackheath by ....	....	4.7
February „ „ „ ....	....	7.0
March „ „ „ ....	....	13.9
April „ „ „ ....	....	12.9
May „ „ „ ....	....	4.1
June, smaller „ „ „ ....	....	2.2
July „ „ „ ....	....	10.4
August „ „ „ ....	....	12.1
September „ „ „ ....	....	4.3
October, larger „ „ „ ....	....	8.4
November „ „ „ ....	....	7.5
December „ „ „ ....	....	7.7

Thus the great ranges of temperature at Sarona in the months of March and April are remarkable, as also the small ranges in the months of July and August.

## MOUNT HOREB.

By J. Stow, Esq.

THE site of Mount Horeb is a question on which a difference of opinion exists, and so far there seem to have been no data to go upon by which its locality could be fixed with any degree of certainty, and yet, notwithstanding the doubt by which the subject is surrounded, it would almost appear that its position is indicated by the prophet Ezekiel: for although he does not in express terms refer to it, he does mention the Waters of Strife (which proceeded out of a rock in Mount Horeb) as forming the southern boundary line of a new division of the land among the twelve tribes, which has not yet taken place; and what is very remarkable, he supplies the exact measurement of each division, so that it is possible to ascertain the length of the land from north to south, the southern boundary of which extends to the Waters of Strife. It is not necessary here to enquire into the apparently preposterous idea of locating several tribes in a howling wilderness; it is sufficient for our purpose to take note of the measurements supplied.

In order to make plain what it is wished to demonstrate there are several particulars to be considered, viz. :—

1. The scale of measurement.
2. The central point from which the measurements are made north and south respectively.
3. The boundaries expressed by name.
4. The divisions of the land.
5. The way in which the correctness of the measurements may be tested.

*First.*—The scale of measurement. This we find in Ezek., xl, 5, is the reed.

The reed = 6 cubits.

The cubit = 1 cubit (18 inches) and a handbreadth (3 inches) or 21 inches.

The reed =  $6 \times 21 = 126$  or  $10\frac{1}{2}$  feet.

This measurement we find applied from first to last in all the measurements made.

*Second.*—The central point is the Sanctuary, *i.e.*, the Temple, see Ezek. xlv, 1 and 4, and xlviii, 9, 10 (mark particularly last clause of verse 10).

Thus we see the Sanctuary or Temple is the central point, and is situated in the centre of the most holy portion allotted to the priests, which is 10,000 reeds from north to south, and 25,000 from east to west.

From this point the measurements of the several divisions of the land commence.

*Third.*—The boundaries expressed by name are, first, the northern, (Ezek. xlvii, 15). Secondly, the southern boundary of the holy portion of 25,000 reeds square (Ezek. xl, 19); and lastly the southern boundary of the division allotted to the tribe of Gad, which is the southern boundary of the land. (Ezek. xlvii, 19, and xlviii, 28.)

*The northern boundary* is given Ezek. xlvii, 15, 16, 17. From this it seems pretty clear the line runs from the sea coast through Zedad westward. It will be seen when we come to measure the distance of the northern boundary from the temple by the sacred measure, that it agrees very nearly with the distance between the latitude of Zedad and that of the Temple.

The second boundary mentioned by name is Tamar, which is situated on the southern boundary line of the holy portion of 25,000 reeds or 20,000 reeds to the south of the temple (*see* Ezek. xlvii, 19.) (The expression "south side" here, as well as that of "north side," xlvii, 15, can only refer to the relative position of the land to be divided among the tribes, xlvii, 13, 14, in respect to the reserved portions set apart for sacred purposes.)

For it follows, if the southern boundary line of this holy portion of 25,000 reeds is situated 20,000 reeds from the Temple, that Tamar, which forms the northern boundary of that portion of the land allotted to the five tribes to the south (in rough sketch) must also be 20,000 reeds from it (*i.e.* the Temple), and it will be seen when the question of distances comes to be considered, that this assumption is not far from being correct.

The last boundary mentioned by name is the extreme southern boundary at the Waters of Strife in Kedesh; now the Waters of Strife are in Mount Horeb (*see* Exodus xvii, 6), therefore if it is possible to fix the correct distance of one we arrive at that of the other. Now we have given us the extent of the land lying between Zedad or its immediate neighbourhood in the north, and the Waters of Strife in the south, which it will be hereafter seen is, according to the measurements laid down, 288 miles 620 yards.

*Fourth.*—*The division of the land.* There are three principal ones, viz. :—

- 1st. The holy portion of 25,000 reeds square.
- 2nd. A portion to the north of the holy portion divided between seven of the tribes.
- 3rd. A portion to the south of the holy portion divided between the remaining five tribes.

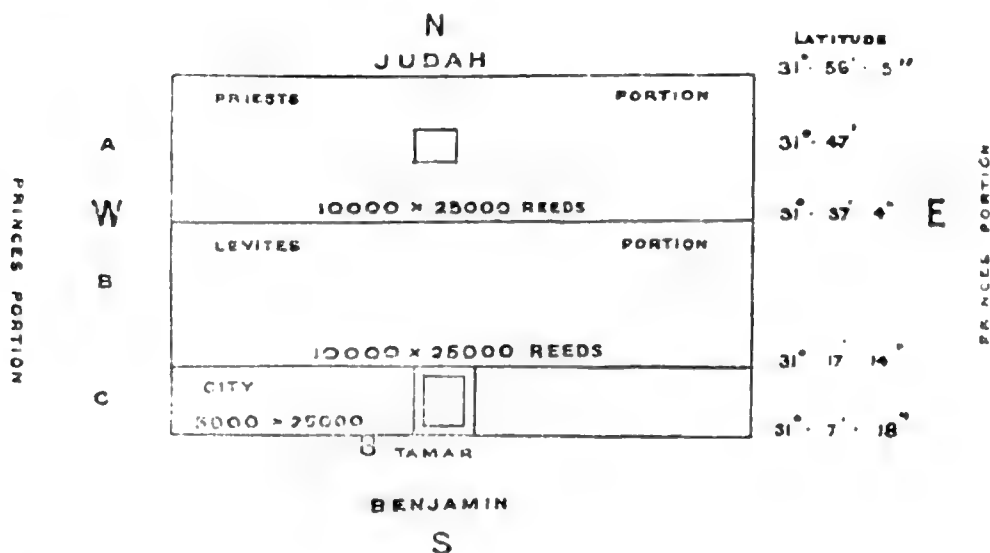
First, the holy portion. This is subdivided into three parts, viz. :—

A portion for the priests (in the centre of which is the Temple), measuring from north to south 10,000 reeds, from east to west 25,000 reeds. (Ezek. xlviii, 10).

A portion for the Levites to the south, of 10,000 by 25,000, (Ezek. xlviii, 13).

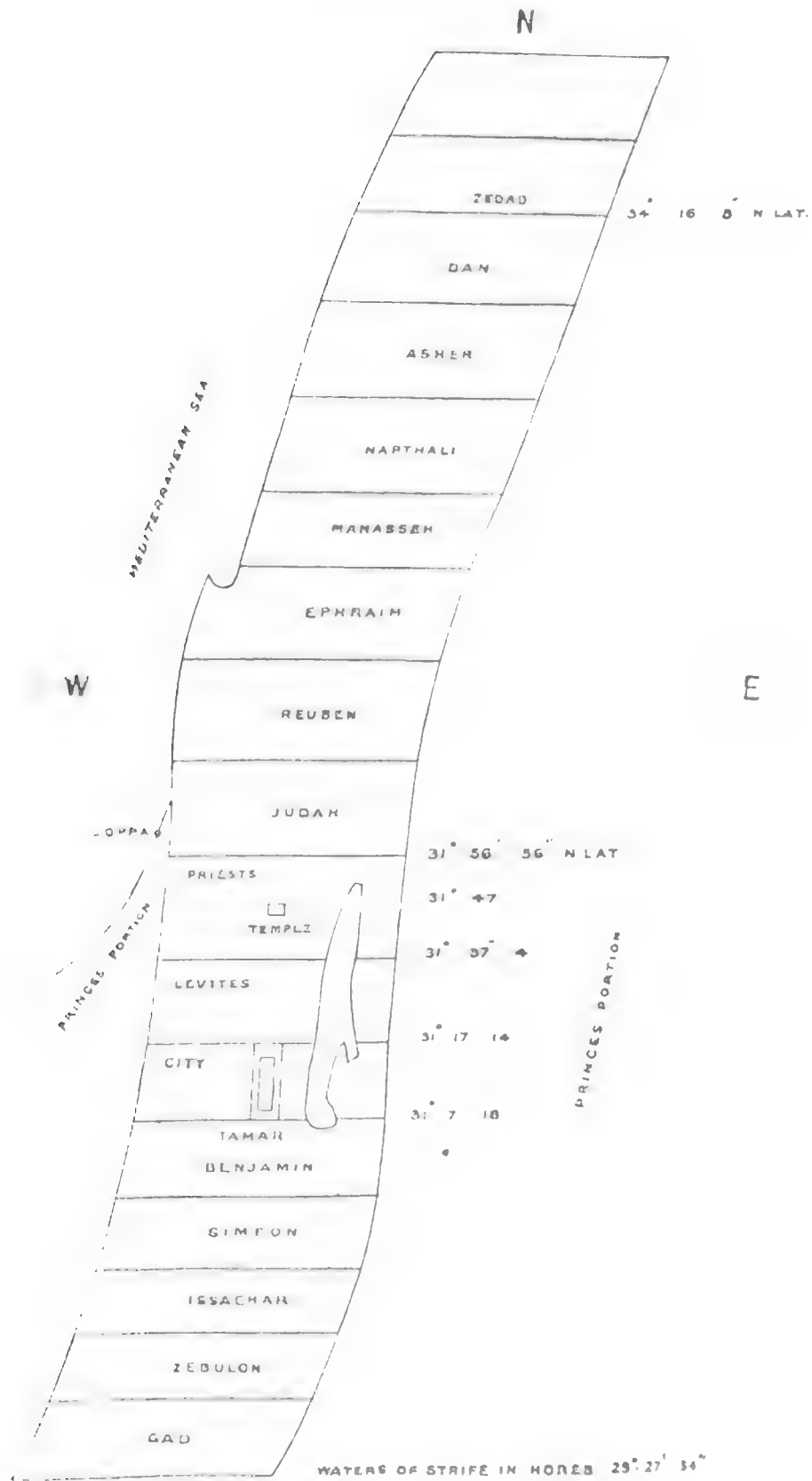
A portion for the City (Ezek. xlviii, 15), to the south of the Levites' portion of 5,000 by 25,000 reeds, making a square of 25,000 by 25,000 (Ezek. xlviii, 20) in the centre of the land reserved for special and holy purposes.

To simplify, a description of which a figure is given.



N.B.—The distance between the Temple and southern boundary is 20,000 reeds, which equals 39 miles 1,365 yards, or  $39^{\circ} 42''$  of Lat.  $31^{\circ} 47' - 39^{\circ} 42'' = 38^{\circ} 7' 18''$ , which is the latitude of the southern boundary of holy portion, and therefore apparently the true latitude of Tamar.

We now pass on to the next division of the land, extending from the northern boundary of the holy portion (Lat.  $31^{\circ} 56' 56''$ ) to the northern boundary of the land in the extreme north running from the sea eastward through Zedad (Ezek. xlvii, 15). This division is subdivided into seven lots between seven tribes (Ezek. xlviii, 1, 8), viz., Dan, Asher, Naphtali, Manassah, Ephraim, Ruben, Judah. The lots are equal, and run each from the sea coast eastward for a distance of 25,000 reeds, and from north to south, a distance of 10,000 reeds—that is to say, there are seven subdivisions each measuring 10,000 by 25,000 reeds. This will be found to be so by a reference to Ezekiel xlviii, 8, 9. Now, in this passage the length of the most holy portion is given as 25,000; the breadth, *the same as one of the other portions*. But the size of the other portions is not given. But, on the other hand, the size of the most holy portion is very minutely given (Ezek. xlviii, 10). It is therefore quite plain that if the most holy portion is equal to one of the other portions, that they each must be equal to it. Now, the most holy portion (*i.e.*, the priests) is 25,000 reeds by 10,000, therefore that must be the size of the other portions respectively. The rough figures on the next page will explain the relative positions of several lots, as described in Ezek. xlviii, 1-29.



It will thus be seen the total length of the land from north to south is as follows, viz. :—

	Reeds.
Seven tribes to north of priests' portion, each 10,000 reeds ...	70,000
Holy portion ....	25,000
Five tribes to south of holy portion ...	50,000
<hr/>	
Reeds ....	145,000

Of  $10\frac{1}{2}$  feet each equals 288 miles 620 yards.

*Fifthly.*—How can the correctness of these measurements be tested? That can only be done by comparing the distances from the central point to the several boundary lines named as measured by the sacred measure with the true latitude of the places named (unfortunately the writer has no means of ascertaining this). It can only therefore be shown what the latitudes of these boundaries should be according to the sacred measurement. The distance from the centre of the most holy portion to the extreme northern boundary is 75,000 reeds of 6 cubits of 21 inches each or  $10\frac{1}{2}$  feet. If, therefore,  $31^{\circ} 47'$  be the correct latitude of the Temple, then the northern boundary of the land will be in Lat.  $34^{\circ} 6' 55''$ . But Zedad is on the northern boundary (Ezek. xlvii, 15; Numbers xxxiv, 8), therefore this should approximate very nearly to the latitude of Zedad.

By the same process the distance of the Temple from the southern boundary of the holy portion of 25,000 reeds is 20,000. Assuming the correctness of this conclusion,  $31^{\circ} 23' 26''$ , should be the latitude of Tamar. It therefore follows, if the measurement between the Temple and Zedad in the north, and the Temple and Tamar in the south, be correct, that we may expect, with some degree of confidence, that the measurements of the extreme southern boundary line, viz., the "Waters of Strife," will be correct also.

Between the southern boundary line of the holy portion and the southern boundary line of Gad's portion, there are five divisions of 10,000 reeds each, or 5,000 reeds of  $10\frac{1}{2}$  feet. Therefore  $29^{\circ} 43' 59''$  is apparently the latitude of the "Waters of Strife" in Horeb (Ezek. xlvii, 19; xlviii, 28).<sup>1</sup>

Rietfontein, Transvaal,  
June 13th, 1890.

<sup>1</sup> There is an error in the plate due to a miscalculation which the author has corrected in the text. The true latitude of Sinai is  $28^{\circ} 32' N$ . Zedad is placed by Robinson  $34^{\circ} 22'$ . Latitude  $29^{\circ} 44'$  is near 'Akabah, and latitude  $31^{\circ} 23'$  near the south end of the Judean chain of mountains.

## QUOTATIONS OF PSALMS.

By MAJOR CONDER, R.E.

IN answer to correspondents, who desire to know the details as to quotations of Psalms, and of the New Testament, on the Byzantine monuments of Palestine, it may be convenient to give those collected by Waddington, to be added to the two already mentioned, in the *Memoirs* and in the *Quarterly Statement*.

(1) Waddington, No. 1,960 from Jimrîn near Bostra ; also from the Monastery of Job in the Haurân (No. 2,413 a).

Αὕτη ἡ πύλη τοῦ Κ(υρίου)ν δικαιο(ι) εισελεύσονται ἐν αὐτ(ῇ). Psalm cxviii. 20.

This is the same that I found repeated on a lintel stone in the ruins of Kh. Khoreisa (*Memoirs* vol. iii, p. 356). The ruins of a chapel were found to which it appeared to belong. The site is on sheet xxi, not far from Hebron.

(2) Waddington No. 2,068, from Umm el Jemâl near Bostra.

Εὐχὴ Νουμεριανῶν (καὶ) Ἰωάννου Ἐκ γαστρὸς μητρὸς Θε(ο)ς ἡμῶ(ν) σὺ εἶ μὴ ἐγκαταλίπῃς +

The lxx version of Psalm xxi, 11, reads—

ἐκ κοιλίας μ(ου) πρὸς μου Θεός μου εἶ σὺ, μὴ αποστῇς ἀπ' ἐμοῦ

(3) Waddington 2,551 c. The well known text on the old basilica entrance to the great mosque at Damascus—

+ Ἡ βασιλία σου Χ(ριστ)έ βασιλία πάντων τῶν αἰώνων καὶ ἡ δεσποτία σου ἐν πασῇ γενεᾷ καὶ γενεᾷ.

This is Psalm cxlv, 13 with Χριστέ added.

(4) Waddington 2,650, from El Barah in Northern Syria.

Κ(ύριο)ς ποιμέν(ι) με + καὶ οὐδέν μοι ὑστερήσ(ει) +

This is Psalm xxiii, 1, with μοι instead of με.

(5) Waddington No. 2,651, from the same ruined town as the last.

Χριστὸ]ς αἰὲ ι(κα) + Πίστις ἐλπίς ἀγάπη + Ἐγίρει ἀπὸ γῆς πτωχὸν καὶ ἀπὸ κοπρίας ἀνυψοῖ πένητα.

Compare the lxx of Psalm cxiii, 7.

ὁ ἐγείρον ἀπὸ γῆς πτωχὸν καὶ ἀπὸ κοπρίας ἀνυψῶν πένητα.

(6) Waddington No. 2,652, from the same site.

Γένοιτο Κύριε τὸ ἔλεός σου ἐφ' ἡμᾶς + καθάπ(ερ) ἡλπίσαμεν ἐπὶ σε) Psalm xxxiii, 22.

(7) Waddington No. 2661, from the ruined town El Has in Northern Syria.

Εὐλογημένος ὁ ἐρχόμενος ἐν ὀνόματι Κυρίου Θεὸς Κύριος καὶ ἐπὶ φανεν ἡμῖν.

This is Psalm cxviii, 26-27 with ἐπὶ φανεν for ἐπέφανεν.

(8) Waddington No. 2,672, from Ruweika gives the exact lxx text of Psalm xci, 1, 2.

(9) Waddington No. 2,677 from Adana in Syria.

Μακάριος ἄνθρωπος ὁς (ἐλπίζει) ἐπὶ (Κύ)ριον κὲ οὐ μὴ ἀπω(λείται). Psalm xxxiv, 19.

(10) Waddington 2,654, from El Mujeliyeh in Northern Syria.

Τὸν Ὑψιστον ἔθου καταφυγὴν σου· οὐ προσελεύσετε πρό(ς) σε κακά· καὶ μάστιξ οὐκ ἐγγύι ἐν τῷ σκηνώματί σου.

This with the changes τε for ται, and ἐγγύι for ἐγγιῇ is the lxx of Psalm xci, 9, 10.

(11) At Deir Sambil with the date 420 A.D. The first verse of Psalm xxiv occurs. (Waddington No. 2,663).

(12) At El Barah also (Waddington 2,648) Psalm iv, 8 is given in a manner differing slightly from the lxx, probably because all the words could not be crowded in. The Doxology is also added with a cross. This text was copied by De Vogüé as follows:—

Ε(δω)κάς μοι εὐ(φροσ)ύνην εἰ(ς) τὴν καρδίαν μου. + Ἀπο καρπῶν σίτου καὶ οἴνου καὶ ἐλλέου ἐνεπλήσθημεν ἐν ἱρηνῇ.

In this rendering μοι is additional; ἐλλέου is a bad spelling for ἐλαίου, which should be followed by αὐτῶν: ἐνεπλήσθημεν stands for lxx ἐπληθύνθησαν; and ἱρηνῇ for εἰρήνῃ. The diphthongs of the Greek are often replaced by single shorter vowels in the Syrian texts. The clause is unfinished, and should end ἐπὶ τὸ αὐτὸ κοιμηθήσομαι. The text is written in three lines perhaps injured on the left; the second begins + Ἀπο, and the third λεου. The Doxology below is as follows:—

Δόξα Πατρὶ καὶ Υἱῷ καὶ ἁγίῳ Πν.

This is probably a text of about 417 A.D.

(13) Waddington No. 2,646, from the same important ruined town of the 5th century, A.D.

+ Κύρ(ιος) φυλάξη τὴν ἴσοδὸν σου καὶ τὴν ἔξοδον ἀπὸ τοῦ νῦν καὶ ἕως τῶν αἰώνων Ἀμήν. Psalm cxxi, 8. The second word stands for φυλάξει.

Two passages of the New Testament also occur.

(14) Waddington No. 2,635. "The Lord hath said to us 'I am the God of Abraham, Isaac, Jacob, our God not of the dead,'" which is contracted from Matt. xxii, 31, 32, and not a textual copy. This is found at Salamiyeh in the region of Palmyra.

(15) Waddington No. 2,647, from El Barah is a fragment + "glory in the highest (to God) and on earth peace" (Luke ii, 14). I think these are all the texts of the kind in Waddington's volume. At Gara has been found on a monument of stone the verse "The Earth is the Lord's and the fulness thereof."

## EARLY AKKADIANS IN LEBANON.

By MAJOR CONDER, R.E.

In a recent paper for the Victoria Institute, Mr. T. G. Pinches, M.R.A.S., of the British Museum, treats of the Akkadian inscriptions of King Gudea, at Tell Loh, dating about 2,500 B.C. The following important passage has been translated.

"When Gudea was building the temple of his god Ningirsu, Ningirsu subjected all things to him, from the upper sea to the lower sea. In Amanus, the mountain of cedar, he has cut and caused to be brought from the mountain, cedar trees whose length was 70 cubits, cedars whose length was 50 cubits, box trees whose length was 25 cubits. With this wood he made various parts of the temple."

Stores were also brought from Phœnicia, and diorite from Makan generally supposed to be Sinai.

This passage indicates an Akkadian invasion of the Lebanon in very early times, and if Makan be correctly identified (and Mr. Pinches agrees with Lenormant on this point), all Palestine would, even before Abraham's time, have been known to, and probably colonised by the Akkadians. The "upper sea" would appear to be the north-east part of the Mediterranean, and the "lower sea" the Persian Gulf. It will be noted that this historic statement agrees with the supposition that an early Akkadian population carved the Hittite monuments, while the language of Mitani,<sup>1</sup> in the 15th century B.C., forms a connecting link, Mitani being the northern part of Mesopotamia, east of the Euphrates and close to the Hittite borders, opposite to their capital of Carchemish. Hitherto this extension of Akkadian rule has not been historically demonstrated, and the new texts are of great value for the history of Palestine.

## NOTE ON THE LACHISH CORNICE.

By MAJOR CONDER, R.E.

THE cornice shown (pp. 26, 35) in Mr. F. Petrie's "Lachish Memoir," closely resembles that in the interior court of the Haram at Hebron. It is also similar to that on two tombs in the Kedron Valley. One of these tombs has been called "Egyptian" because of this cornice, but on the other (Absalom's tomb) this cornice occurs with Ionic capitals. The Hebron masonry being of the same class with the Herodian work at Jerusalem, I think there can be little hesitation in regarding this kind of cornice as belonging to the Greek or Greco-Roman age in Palestine. The date is therefore more probably the 1st rather than the 10th century B.C., and it may be placed even as late as the 1st century A.D. with great probability. This agrees with the Greek character of the pillar found in connection with the cornice.

Some of the buildings found at Lachish appear to me to be as late as 500 A.D.

<sup>1</sup> I hope shortly to publish a translation of this important letter of Dusratta in this language, which is an Akkadian dialect. The letter contains more than 500 lines of writing. Only a few scattered words have so far been explained.

## THE HITTITE PRINCE'S LETTER.

By MAJOR CONDER, R.E.

THE original text of this letter, having been published by Dr. Winckler, was under discussion last month between Mr. G. Bertin and myself. The death of this excellent Akkadian scholar has just occurred, and is a great loss to the study of the antiquities of Western Asia. Writing to me during his last illness, he says.

"I do not think that there can be any doubt about the language of this letter of Tarkondara; being neither Semitic nor Aryan nor Egyptian, it must, therefore, be Turanian."

To this conclusion, also, Mr. T. G. Pinches has been carried by the forms of the verbs, and this places the study of the Hittite language on a firm basis, showing its connection with Akkadian, and so with the still extant Archaic dialect of Turkestan and Mongolia.

## CORRECTION.

ON p. 71 of the January *Quarterly Statement*, 1891, I have made two mistakes. In the fourth line from the bottom read A.D. for B.C., and in the last line for "the lxx," read "the Hebrew of the Old Testament."

C. R. C.

## NOTES ON THE QUARTERLY STATEMENT.

By MAJOR CONDER, R.E.

JANUARY, 1891. P. 13. The note bearing my initials must be corrected, I had not seen the copy of the inscription, which is not the Syriac text to which I referred.

P. 77. If it be the case that "*no Semitic scholar either challenged or contradicted*" the idea that Mr. T. Ballhatchet was a Phœnician, it was probably because the assertion was not worth contradicting. Dr. Max Müller long ago exploded the fallacy of supposing Phœnician names to be recognisable in Devonshire or Cornwall. We do not even know that the Phœnicians ever landed in England, and no Phœnician texts are known nearer home than Marseilles or Spain.

P. 84. Dr. Chaplin's Mask, from Er Ram, is mentioned in the "*Memoirs*," vol. iii, p. 438, and was shown to me by Dr. Chaplin. I have a sketch of it in my MS. notes. It can never have been used as a real mask, being so very thick; perhaps, however, it was fastened on to another stone. It seems to me that it might be of any date, from the 12th century, A.D., backwards.

## THE SCULPTURED TOMB AT SHEFA 'AMAR.

By HERR SCHUMACHER.

IN the *Quarterly Statement* of January, 1891, p. 72, VII, Major Conder writes that I give an "imperfect sketch" of the sculptured tomb at Shefa 'Amr, and that I do not mention the inscription. In reply I beg to draw the attention of Major Conder to the fact stated in *Quarterly Statement*, October, 1889, p. 188, that the tomb I sketched and photographed was *recently* discovered, and, although situated *near* those given in the "Memoirs," is not the same of which he gives an inscription. I have visited all the tombs, together with my friend the Rev. Van Kasteren, and have also seen the one with the Greek inscription; but that I photographed was not discovered at the time of the P.E.F. Survey. It contains no characters but the  $\alpha$  and  $\Omega$  and a rude ornamentation work.

HAIFA,

*February 11th, 1891.*

## MILLO, HOUSE OF MILLO, AND SILLA.

By GEORGE ST. CLAIR, F.G.S.

IN a former paper I suggested, in a tentative way, that Millo might perhaps be the great causeway which crosses the Tyropœan at Wilson's Arch. I now make a different but a cognate suggestion, with more confidence, because I can support its probability by a little array of evidence. I am persuaded that Millo was a great defensive mound or dam crossing the Tyropœan, at the southern end of what Josephus calls a fortified ditch, instead of at its northern end ("Antiq." x, 8, 2). In fact it corresponds to the transverse wall which I have contended for, and the position of which I have tried to show.

It is possible that even the Jebusites had hit upon the device of making a dam, in some rude fashion, to bar the approach up the Tyropœan Valley. Sir George Grove, in the "Dictionary of the Bible," conjectures that it was the Jebusites who first built Millo, and named it by a word in their own language, because it is difficult to find a satisfactory Hebrew etymology for it; because, secondly, the Canaanites of Shechem also had a Millo (Judges ix, 6, 20); and lastly, because David seems to have found Millo already existing when he came to Jerusalem.

David having taken the stronghold of Zion, improved his new capital by building "round about, from Millo and inward" (2 Sam. v, 9). This suits very well the idea that Millo was a great dam which constituted the outer defence of the Tyropœan, and to a great extent of Zion itself. It is not unlikely either that the House of Millo was a castle at the end of the dam, on the Ophel Hill, which was adopted by David as a place

of residence, and so became the House of David. David may possibly have improved both the castle and the dam.

But it was Solomon who so strengthened this work as to deserve the credit of having constructed it. It was one of the great works for the accomplishment of which he made a levy upon all parts of the kingdom (1 Kings ix, 15). The nature of the work is indicated in 1 Kings ix, 27, "Solomon built Millo (and so) closed up the fissure of the City of David his father;" the fissure or cleft is the ravine, and the two works, of building Millo and closing the cleft, are either one and the same or are closely associated together. The rebuilding would no doubt extend to the House of Millo, which had become David's house; accordingly, before it can be begun another residence must be provided for Solomon's wife. Pharaoh's daughter was brought up "out of the City of David unto her house which Solomon had built for her: then did he build Millo" (1 Kings ix, 24). The labourers employed upon the work were the children of Joseph, and their superintendent was Jeroboam, an Ephramite, probably already acquainted with the similar work at Shechem (1 Kings xi, 28). It is stated in the Septuagint that Jeroboam completed the fortifications at Millo, and was long afterwards known as the man who had "enclosed the City of David."

But although Millo was a mound or dam rather than a wall, we need not suppose it was a mere earthwork; it would most probably be faced with masonry, to ensure its preservation and increase its strength. The work was so well done that Jerusalem was never again attacked on this side, although previously this side was found the most vulnerable, both by David and by the children of Simeon and Judah in the days after Joshua.

Joash was assassinated at the House of Millo, going down Silla (2 Kings xii, 20, combined with 2 Chron. xxiv, 25). There has been as much obscurity about Silla as about Millo. Some have supposed it to be the same as M'sillah in 1 Chron. xxvi, 16,—a stairway at the west gate of the Temple. But the locality of this M'sillah is at one of the Parbar gates, north of Wilson's Arch, and can have nothing to do with Beth Millo. However, the M'sillah and the Silla are related in etymology and in meaning—for both of them are banks with stairways. Silla is the stairway at Millo itself: Joash was leaving David's house to escape the conspirators, and was being carried on a litter down the stairway. When Nehemiah, in his description of the walls, comes to Millo, as I understand him, he has to speak of the stairs of the City of David, and the stairway of the wall above the House of David (or Beth Millo), Neh. iii, 15, xii, 37. The word for stairs here is Maaloth.

Hezekiah, who was much concerned about the south-eastern part of the city, "strengthened Millo, the City of David" (2 Chron. xxxii, 5).

If we are to find a Hebrew etymology for the name מִלּוֹ (Millo), it seems to be a noun formed in the usual way by prefixing the letter M to a verb. There is the Aramæan intransitive verb מָלַן, equivalent to

the Hebrew לָוֶה, with the meaning *to be inclined*, and among other meanings *to wind about*, *to twist*, and used concerning stairs as well as concerning serpents and garlands. Is it not something more than a coincidence that a regular Hebrew word for stairs is מַעְלָה, *Maaloth*, similar to Millo, though formed from the verb עָלָה?

As to סִלָּא (Silla), from סָלַל to heap up, to tower up,—it accords very well with all we can gather or guess about the great dam. Sollah was the mound which in ancient warfare was used in besieging a town. How likely it seems that some variant of it would describe a mound constructed for defensive purposes. It is worth noting that the writers of Targums express the Hebrew Sollah by the word Milletha, and that they use the same word Milletha to render Millo. It seems clear that to them Sollah and Millo were alike a mound, whether used for attack or defence.

If there is truth in this view about Millo, Millo might be found by sinking one shaft in the Tyropœan and driving a gallery north and south. And then would follow the discovery of the stairs and the sepulchres.

## THE FULLER'S FIELD.

By GEORGE ST. CLAIR, F.G.S.

IN the days of King Ahaz, when Jerusalem was threatened by the allied forces of Rezin, King of Syria, and Pekah, King of Israel, Isaiah was commanded to "go forth (go outside the city?) and meet Ahaz, at the end of the conduit of the upper pool, in the highway of the Fuller's field" (Isaiah vii, 3). The upper pool here spoken of is believed to be the Virgin's Fountain, which is elsewhere the upper spring of the waters of Gihon, and where we find one end of a conduit which connects it with a lower pool at Siloam. But if this is what is meant, why is the spot not described shortly and plainly as En Rogel, by which name it was already known? (1 Kings i, 9). Surely it is not En Rogel itself which is meant, but the end of a channel or passage belonging to it, and yet not the end which terminates at the pool of the spring; nor the Siloam end either, else it would be so stated. Does it not refer to the top of the shaft and stairway of the Ophel Hill, which had been so long lost until rediscovered by Warren? This entrance was of course known to Isaiah, and known to the King. Being near the King's gardens, perhaps within their boundary, Ahaz may have been accustomed to walk there. The place spoken of is not really stated to be "*in* the highway of the Fuller's field;" for in the Hebrew text the word "*in*" is not found, and the word highway is not the only fair rendering of the Hebrew *M'sillah*. The text might be translated, Go and meet Ahaz at "the end of the

channel of the upper pool, the stairway of the Fuller's field." This is an exact description of the top of the Ophel shaft.

We recall the statement of Josephus, that when James the Just was thrown over the Temple wall, a fuller despatched him with his club. And we remember that in a cavern on Ophel, Warren found what appeared to be dyers' vats.

In the days of Hezekiah, the son of Ahaz, the stairway shaft is again spoken of. Sennacherib's officers have pitched their camp north-west of the city; but desiring a conference with Hezekiah—who was probably living in David's house on Ophel—they came and "stood at the passage of the upper pool, which is at the staircase of the Fuller's field" (2 Kings xviii, 17). There they called to the King, and when Hezekiah deputed his Prime Minister, Secretary, and Recorder to represent him, these officers spoke from the wall.

The circumstances may seem to require that the wall should extend a little more southward than the wall found by Warren, but they appear to be good evidence that the Ophel shaft was outside the wall, and that the King's house was within shouting distance of the shaft, or at any rate that the Assyrian officers thought so.

But if *M'sillah* in this passage is not to be rendered stairway, nor highway, but rather "mound" (see paper on Millo and Silla), then it suggests that the dam which crossed the Tyropœan had its eastern termination not far from the Ophel shaft. In that case the Fountain Gate of Nehemiah would be at the south-east angle of Jerusalem, where the shortest path leads off to Siloam Pool. (A man knows best himself the weak points of his own theories, and I have been surprised that no critic should have pointed out that the Fountain Gate should more naturally be looked for here, rather than at the point assigned it in my paper and plan, April, 1889).

[QUARTERLY STATEMENT, JULY, 1891.]

# THE PALESTINE EXPLORATION FUND

## NOTES AND NEWS.

THE office of the Fund has been transferred to 24, HANOVER SQUARE, W., where the most interesting of the objects collected from time to time by the officers of the Fund will be exhibited. The Rev. Greville J. Chester has kindly promised his advice and assistance in arranging the objects.

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Herr Schick having recovered from an indisposition of some duration, has continued his researches as opportunity offered. Unfortunately the surreptitious removal of the Siloam inscription has made the Turkish authorities suspicious, and the excavations in connection with the "second Siloam aqueduct" have had to be discontinued. He sends an account of his examination of the recently observed arch in "Solomon's stables" and of other interesting matters.

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Mr. G. R. Lees having forwarded a photograph of this arch, a reproduction of the photograph is published in the present number, together with the promised paper of Mr. T. Wrightson, M.I.C.E.

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The visit of Professor T. Hayter Lewis to Jerusalem last year has enabled him to furnish a valuable paper on the "Ruins of the Church on the Skull Hill, Jerusalem," which will be found at page 211.

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Mr. F. J. Bliss continued the excavations at Tell el Hesi until the advancing season of harvest made it impossible for him to obtain labourers. He has since

been occupied in writing a detailed report of his work which will be published in the October *Quarterly Statement*.

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According to the *Jewish Chronicle* the Jaffa and Jerusalem Railway has been opened as far as Ramleh.

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On the occasion of his visit to Edinburgh to receive the honorary degree of LL.D., which has been conferred on him by the University of that city, Major Conder delivered a lecture in the Freemasons' Hall on Palestine Exploration. Sir William Muir presided, and there was a large attendance. On the motion of the Rev. J. G. Cunningham, seconded by the Rev. Professor Duns, Major Conder was cordially thanked for his lecture.

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Messrs. Kegan Paul and Co. have just issued a work by Mr. George St. Clair, F.G.S., on "Buried Cities and Bible Countries." It contains numerous maps and drawings, several of which have been lent by the Fund. It will be remembered that Mr. St. Clair was for many years one of the authorised lecturers for the Fund.

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Mr. F. J. Bliss has furnished an elaborate paper on "The Maronites," which will shortly be published.

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It may be well to mention that plans and photographs alluded to in the reports from Jerusalem and elsewhere cannot all be published, but all are preserved in the offices of the Fund, where they may be seen by subscribers.

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The first volume of the "Survey of Eastern Palestine," by Major Conder, has been issued to subscribers. It is accompanied by a map of the portion of country surveyed, special plans, and upwards of 350 drawings of ruins, tombs, dolmens, stone circles, inscriptions, &c. The edition is limited to 500. The first 250 subscribers pay seven guineas for the three volumes; subscribers to the "Survey of Western Palestine" are privileged to have the volumes for this sum. The price will be raised, after 250 names are received, to twelve guineas. The Committee are pledged never to let any copies be subscribed under the sum of seven guineas. Mr. A. P. Watt, 2, Paternoster Square, is the Sole Agent. The attention of intending subscribers is directed to the announcement after Maps and before Contents of this number.

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Mr. H. Chichester Hart's "Fauna and Flora of Sinai, Petra, and the Wady 'Arabah" has been completed and sent out to subscribers.

The following gentlemen have kindly consented to act as Honorary Local Secretaries :

John Whitehead, Esq., Esplanade, Guernsey.

A. B. Lloyd, Esq. (in the place of Mr. Greenwell, resigned), for Newcastle-on-Tyne.

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The Committee have to acknowledge with thanks the following donation to the Library of the Fund, viz. :—

“Itinerarium D. Beniaminis cum Versione et Notis Constantini L’Empereur ‘ab Oppyck, S.T.D. et S.L.P. in Acad. Lugd. Batava,’ from the Rev. George H. Culshaw.

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The books now contained in the Society’s publications comprise an amount of information on Palestine, and on the researches conducted in the country, which can be found in no other publications. It must never be forgotten that no single traveller, however well equipped by previous knowledge, can compete with a scientific body of explorers, instructed in the periods required, and provided with all the instruments necessary for carrying out their work. The books are the following (*the whole set (1 to 15) can be obtained by subscribers to the Fund by application to the Head Office only (24, Hanover Square, W.), for £3 0s. 0d., carriage paid to any part in the United Kingdom only*) :—

By Major Conder, R.E.—

- (1) “Tent Work in Palestine.”—A popular account of the Survey of Western Palestine, freely illustrated by drawings made by the author himself. This is not a dry record of the sepulchres, or a descriptive catalogue of ruins, springs, and valleys, but a continuous narrative full of observations upon the manners and customs of the people, the Biblical associations of the sites, the Holy City and its memories, and is based upon a six years’ experience in the country itself. No other modern traveller has enjoyed the same advantages as Major Conder, or has used his opportunities to better purpose.
- (2) “Heth and Moab.”—Under this title Major Conder provides a narrative, as bright and as full of interest as “Tent Work,” of the expedition for the *Survey of Eastern Palestine*. How the party began by a flying visit to North Syria, in order to discover the Holy City—Kadesh—of the children of Heth; how they fared across the Jordan, and what discoveries they made there, will be found in this volume.
- (3) Major Conder’s “Syrian Stone Lore.”—This volume, the least known of Major Conder’s works, is, perhaps, the most valuable. It attempts a task never before approached—the reconstruction of Palestine from its monuments. It shows what we should know of Syria if there were no Bible, and it illustrates the Bible from the monuments.

- (4) Major Conder's "Altaic Inscriptions."—This book is an attempt to read the Hittite Inscriptions. The author has seen no reason to change his views since the publication of the work.
- (5) Professor Hull's "Mount Seir."—This is a popular account of the Geological Expedition conducted by Professor Hull for the Committee of the Palestine Fund. The part which deals with the Valley of Arabah will be found entirely new and interesting.
- (6) Herr Schumacher's "Across the Jordan."
- (7) Herr Schumacher's "Jaulân."—These two books must be taken in continuation of Major Conder's works issued as instalments of the "Survey of Eastern Palestine." They are full of drawings, sketches, and plans, and contain many valuable remarks upon manners and customs.
- (8) "The Memoirs of Twenty-one Years' Work."—This work is a popular account of the researches conducted by the Society during the past twenty-one years of its existence. It will be found not only valuable in itself as an interesting work, but also as a book of reference, and especially useful in order to show what has been doing, and is still doing, by this Society.
- (9) Herr Schumacher's "Kh. Fahl." The ancient Pella, the first retreat of the Christians; with map and illustrations.
- (10) Names and Places in the Old and New Testament and Apocrypha, with their modern identifications, with reference to Josephus, the Memoirs, and *Quarterly Statements*.
- (11) Besant and Palmer's "History of Jerusalem."—The "History of Jerusalem," which was originally published in 1871, and has long been completely out of print, covers a period and is compiled from materials not included in any other work, though some of the contents have been plundered by later works on the same subject. It begins with the siege by Titus and continues to the fourteenth century, including the Early Christian period, the Moslem invasion, the Mediæval pilgrims, the Mohammedan pilgrims, the Crusades, the Latin Kingdom, the victorious career of Saladin, the Crusade of Children, and many other little-known episodes in the history of the city and the country.
- (12) Northern 'Ajlûn "Within the Decapolis," by Herr Schumacher.

By Henry A. Harper—

- (13) "The Bible and Modern Discoveries."—This work, written by a Member of the Executive Committee of the Palestine Exploration Fund, is an endeavour to present in a simple and popular, but yet a connected form, the Biblical results of 22 years' work of the Palestine Exploration Fund. The writer has also availed himself of the discoveries made by the American Expeditions and the Egyptian Exploration Fund, as well as discoveries of interest made by independent travellers.

The Bible story, from the call of Abraham to the Captivity, is taken, and details given of the light thrown by modern research on the sacred annals. Eastern customs and modes of thought are explained whenever the writer thought that they illustrated the text. This plain and simple method has never before been adopted in dealing with modern discovery.

To the Clergy and Sunday School Teachers, as well as to all those who love the Bible, the writer hopes this work will prove useful. He is personally acquainted with the land; nearly all the places spoken of he has visited, and most of them he has moreover sketched or painted. It should be noted that the book is admirably adapted for the School or Village Library.

By Guy le Strange—

- (14) "Palestine under the Moslems."—For a long time it had been desired by the Committee to present to the world some of the great hoards of information about Palestine which lie buried in the Arabic texts of the Moslem geographers and travellers of the Middle Ages. Some few of the works, or parts of the works, have been already translated into Latin, French, and German. Hardly anything has been done with them in English, and no attempt has ever been made to systematise, compare, and annotate them.

This has now been done for the Society by Mr. Guy le Strange. The work is divided into chapters on Syria, Palestine, Jerusalem, and Damascus, the provincial capitals and chief towns, and the legends related by the writers consulted. These writers begin with the ninth century and continue until the fifteenth. The volume contains maps and illustrations required for the elucidation of the text.

The Committee have great confidence that this work—so novel, so useful to students of mediæval history, and to all those interested in the continuous story of the Holy Land—will meet with the success which its learned author deserves.

By W. M. Flinders Petrie—

- (15) "Lachish" (one of the five strongholds of the Amorites).—An account of the excavations conducted by Mr. Petrie in the spring of 1890, with view of Tell, plans and sections, and upwards of 270 drawings of the objects found.

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By Trelawney Saunders—

- (16) "An Introduction to the Survey of Western Palestine, describing its Waterways, Plains, and Highlands, with special reference to the Water Basin—(Map. No. 10)."
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The new map of Palestine, so long in hand, is now ready. It embraces both sides of the Jordan, and extends from Baalbek in the north to Kadesh Barnea in the south. All the modern names are in black; over these are printed in red the Old Testament and Apocrypha names. The New Testament,

Josephus, and Talmudic names are in blue, and the tribal possessions are tinted in colours, giving clearly all the identifications up to date. It is the most comprehensive map that has been published, and will be invaluable to universities, colleges, schools, &c.

It is published in 21 sheets, with paper cover; price to subscribers to the Fund, 24s., to the public, £2. It can be had mounted on cloth, rollers, and varnished for hanging. The size is 8 feet by 6 feet. The cost of mounting will be extra (*see* Maps).

Branch Associations of the Bible Society, all Sunday School unions within the Sunday School Institute, the Sunday School Union, and the Wesleyan Sunday School Institute, will please observe that by a special Resolution of the Committee they will henceforth be treated as subscribers and be allowed to purchase the books and maps (by application only to the Secretary) at reduced price.

The income of the Society, from March 23rd to June 17th, was—from annual subscriptions and donations, including Local Societies, £178 19s. 6d.; from all sources, £281 15s. 6d. The expenditure during the same period was £513 0s. 10d. On June 18th the balance in the Bank was £519 15s. 7d.

Subscribers are begged to note that the following can be had by application to the office, at 1s. each:—

1. Index to the *Quarterly Statement*, 1869–1880.
2. Cases for Herr Schumacher's "Jaulân."
3. Cases for the *Quarterly Statement*, in green or chocolate.
4. Cases for "Abila," "Pella," and "'Ajlûn" in one volume.

Early numbers of the *Quarterly Statement* are very rare. In order to make up complete sets, the Committee will be very glad to receive any of the following numbers:—

No. II, 1869; No. VII, 1870; No. III, 1871; January and April, 1872; January, 1883, and January, 1886.

It having again been reported to the Committee that certain book hawkers are representing themselves as agents of the Society, the Committee have to caution subscribers and the public that they have no book hawkers in their employ, and that none of their works are sold by itinerant agents.

While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee wish it to be distinctly understood that by publishing them in the *Quarterly Statement* they neither sanction nor adopt them.

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Subscribers who do not receive the *Quarterly Statement* regularly are asked to send a note to the Secretary. Great care is taken to forward each number to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

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The only authorised lecturers for the Society are—

- (1) The Rev. Thomas Harrison, F.R.G.S., Member of the Society of Biblical Archaeology. Address: Rev. Thomas Harrison, Hillside, Benenden, Staplehurst, Kent. His subjects are as follows:—

- (1) *Research and Discovery in the Holy Land.*
- (2) *In the Track of the Israelites from Egypt to Canaan.*
- (3) *Bible Scenes in the Light of Modern Science.*
- (4) *Eastern Palestine.*
- (5) *The Dead Sea and the Cities of the Plain.*

- (2) The Rev. Charles Chidlow, M.A., Caid Vicarage, Llandilo:—

*Recent Discoveries in Bible Lands.*

Application for Lectures may be either addressed to the Secretary, 24, Hanover Square, W., or sent to the address of the Lecturers.

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It has been asked why Mr. St. Clair's name has been omitted from the list of lecturers. The reason is that during the last season Mr. St. Clair has been lecturing on his own responsibility. His relations with the Committee are, and always have been, of a cordial character, and the Committee desire to express their sympathy with him in his efforts to awaken and sustain interest in "Eastern Exploration."

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## REPORTS FROM JERUSALEM.

LETTERS FROM HERR SCHICK.

JERUSALEM, *February*, 1891.

## DISCOVERIES IN "SOLOMON'S STABLES."

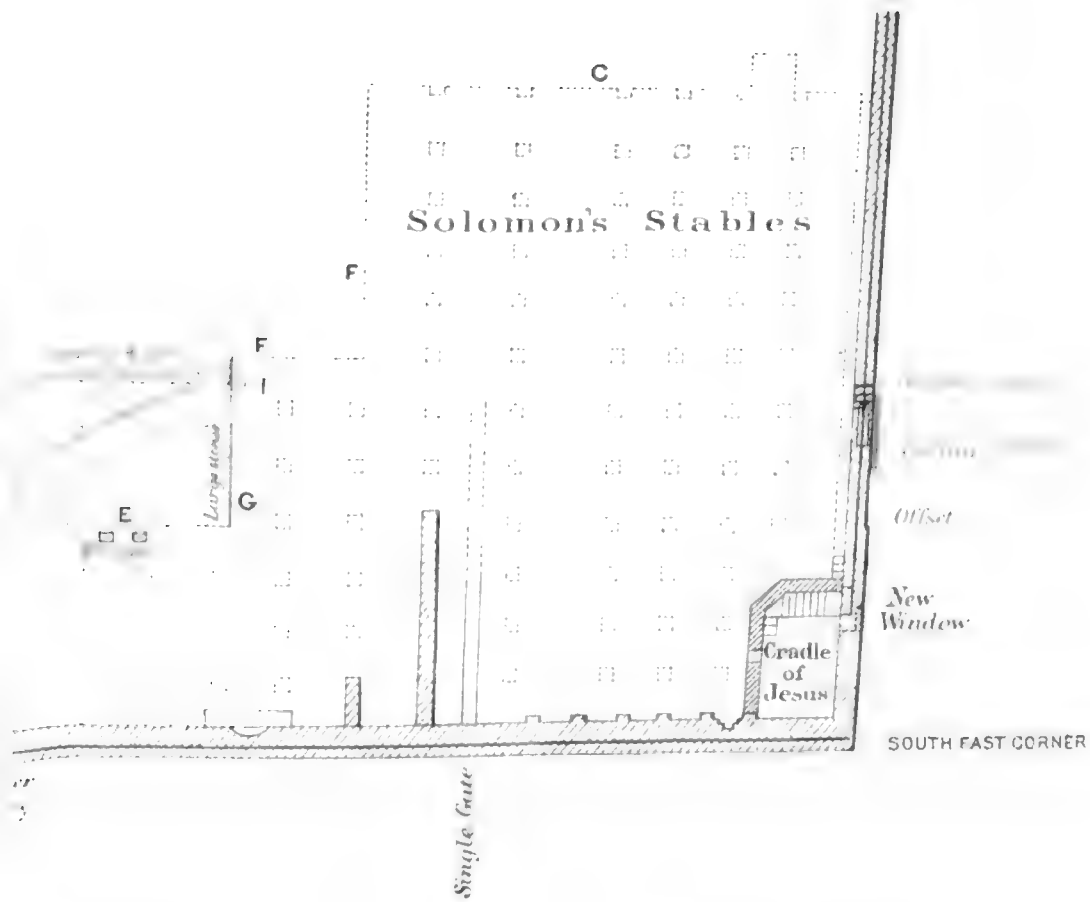
SOME years ago the Moslems began to clear the earth from the so-called "Solomon's stables." Then the work rested for some time, and has recently been completed. After the removal of the earth some things of interest for the student came to light. First, that the north wall C, of the substructions consists of very large dressed stones. Second, that the west wall D, also consists of large stones, all, or at least the lower ones, *in situ*, and that there on the flooring the rock is visible. East of it, close to the wall E, are a few stone mangers. The wall E also has large stones; the wall F has stones of all sorts, and certainly of later period than the others mentioned. I think these walls were built up by Herod as a foundation for his grand hall or threefold cloister on the south side ("Antiq.," Joseph. xv, 11, 5) reaching to "the west and east valley," and just here (as the section will show) the slope of the valley begins. Under this part a *passage* was recently found by the Rev. J. E. Hanauer, and according to his description and measurements, I have laid it down on the accompanying drawing.

For what purpose this passage was made is not easy to say. One thinks first of water (aqueduct), but certainly this passage has never been made as such; and as there are under the Triple Gate similar passages which were found long ago, and are shown in all the plans published by the Exploration Fund, I have thought it well to make a copy of this part of the Ordnance Survey Plan, scale  $\frac{1}{500}$ , of the Haram at Jerusalem, in order to show upon it the exact site of the new-found one, and also the others.

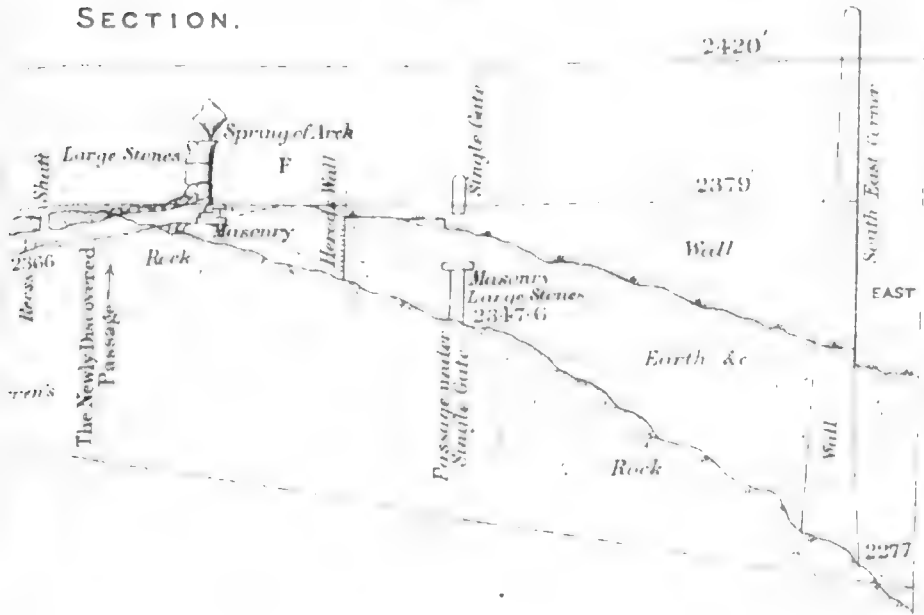
Both branches of one marked A A under the Triple Gate end in the north abruptly, and one wing has a crevice at the end.

It is tunnel-like, hewn in the rock, descends towards the south, and where its two branches are connected, comes out from the rock scarp, and further on is made of rough masonry. The rocky part was never for water, but it may be that in later time, especially at the time of the Crusaders<sup>1</sup>, its walled prolongation was used as a sewer. Not so the other marked B, which was certainly intended for water—first to bring surface water to the cistern H by the upper branch, and when the cistern became full, to carry off the superfluous water by the lower

<sup>1</sup> According to Arabic writers the Crusaders had here the common water closets, which the Muhamedans, when again in possession of the Haram, removed.

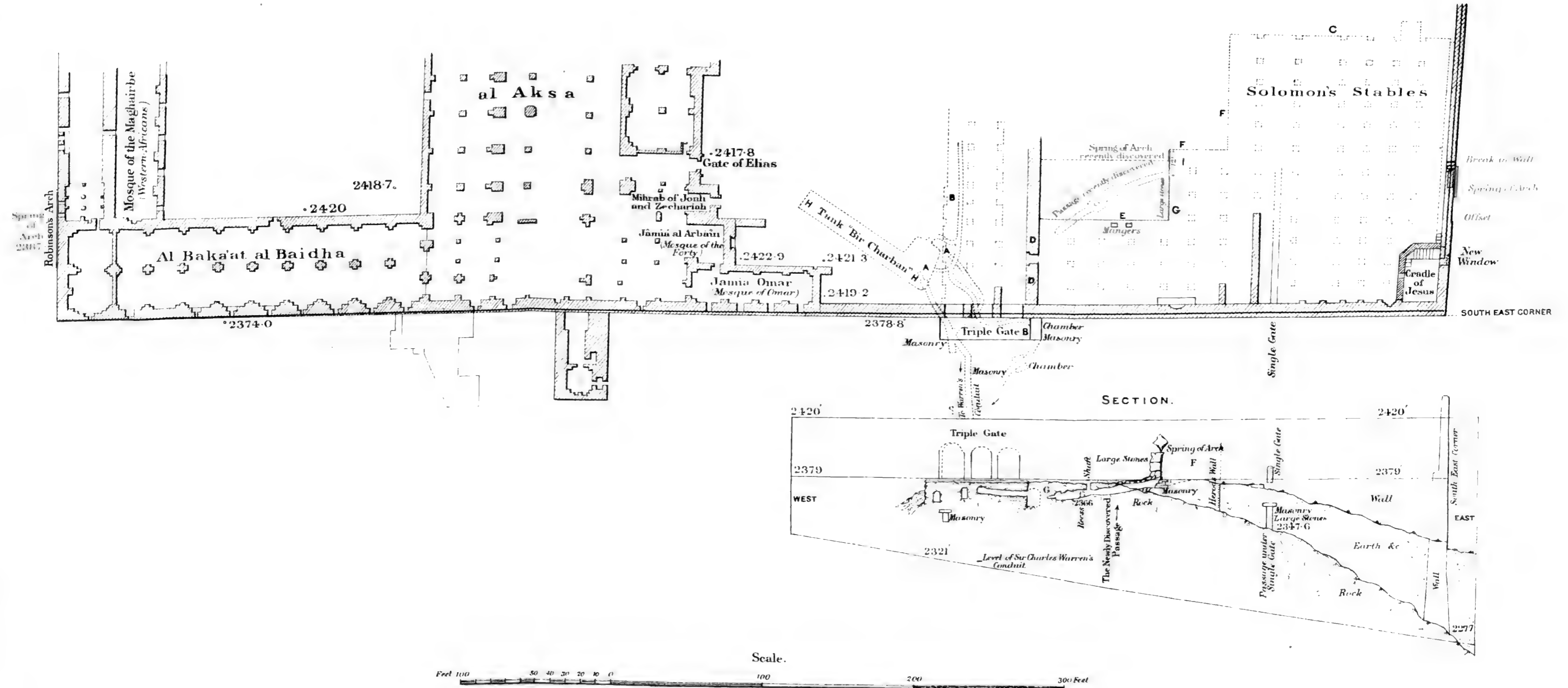


SECTION.



## SOUTHERN PART OF THE HARAM ESH SHERIF, JERUSALEM

Traced from Ordnance Plan to shew the position of the newly discovered  
Passage and Spring of Arch, by Barauth C. Schick, February 1891.





branch into the same aqueduct B, which crosses the first channel marked A, being cut at a higher level, and taking an easterly direction, comes out from the rock on its eastern scarp, where there was once a kind of arched room, perhaps formerly a cistern. It then goes further (all masonry) to a point where it might meet the other, but the junction has not been ascertained. South of this suggested meeting point, about 65 feet distant, and in the same line, the Ordnance Survey plan, and others, show a conduit discovered by Sir Charles Warren when he found the underground rock-hewn stables. In front of the Triple Gate there was a *podium* formed of rock, scarped down on three sides and covered with very large, flat, and finely-chiselled flagging stones, as shown in the drawings. These channels or passages come out through this podium.

#### SPRING OF AN ANCIENT ARCH.

When the heap of earth in one of the corners at Solomon's Stables (marked I) was removed, there were seen, on the western wall of this corner three layers of large stones, and over them a fourth, put a little backward, which formed the spring of a former arch, in some degree similar to "Robinson's Arch." The height of this spring is about 4 feet, and its length visible for 11 feet 6 inches, but it is, very likely, still longer, going behind the block of masonry, which is apparently of a later date than the arch. The spring of the arch is about 14 feet from the ground or the present floor of the substruction. I hear that Mr. Lees has photographed the whole and sent a copy to the Exploration Fund, which certainly will afford a complete explanation.

#### VARIOUS NOTES.

JERUSALEM, *March 16th*, 1891.

I am sorry to say the history of the Siloam inscription has already, as I feared, produced evil consequences. I last week resumed the work of clearing the second Siloam aqueduct, but after a few days someone gave notice to the local authorities, and immediately the workpeople were arrested and put in prison. On my explaining the matter they were set at liberty, for "my sake," as they said, but going on with the work cannot be allowed, and I was directed to apply for a paper permitting such work.

Monsieur P. M. J. Lagrange, Principal of the Dominicans' place, near Jeremiah's Grotto, made a journey beyond the Jordan. A description of it in French, by Delhomme and Briguel, Paris, was printed under the title, "*Au delà du Jourdain.*" In it mention is made of inscriptions which were recently found, one being Nabatean, from Medeba, and another, a text of Scripture in Samaritan, from Amwas.<sup>1</sup>

The winter rains have been very heavy, and severe storms occurred. A large steamer was stranded at Jaffa, and the bridge over the Jordan was destroyed and washed down to the Dead Sea, so that for a long time

<sup>1</sup> Photographs of these inscriptions are in the offices of the Fund.

the river could not be crossed except by the old bridge below the Galilean Sea. Bîr Eyûb here was flowing for several weeks.

A few months ago, I heard that in the village Shâfât an ancient church was found. As at the time I was not well, and there was nearly continually rain, I could not go there till *now*, but found no church, simply an old Crusading building with two preserved windows. The walls are about 6 feet thick, against which the fellaheen houses are built and so not easy to recognise. It was a kind of khan built in the usual Crusading way, with a vault a little higher in middle than semi-circular.

The Latins having got possession of a house in the Via Dolorosa or Tarik Es Sarai, on Sir C. Wilson's plan called "Veronica's house," have pulled down parts of it and intend to rebuild the whole, preserving some old parts. I examined the place but found nothing of interest, but will watch, and go there from time to time.

Inside the city, close to the town wall, at the corner between the newly-opened gate and the school of the brethren (the ancient Kâlât al Jalûd), the ground has been cleared away to the rock, as a new building will be erected there. Nothing of interest was found except large hewn stones and heavy rough boulders, a small cistern, some unimportant walls and *débris*. The rock is about 11 feet under the present surface of the ground.

Pool of Bethesda.—In consequence of the heavy rains some of the arches over this pool gave way, and so some vaultings and the part of the neighbouring houses fell and filled the pool.

The new buildings on the northern part of Mount Olivet for Mr. Gray Hill are advancing, and give to the scenery round Jerusalem a new feature. It will certainly be more agreeable and interesting when on the hill-tops round Jerusalem there will be buildings instead of bare hills.

#### THE NEWLY DISCOVERED ARCH IN "SOLOMON'S STABLES."

*April, 1891.*

I have been at the "Haram Es Sherif," and inspected what has been done there by the Moslems during the last three or four months. All the earth heaps, which were in those places where there is an opening in the roofing of the substructions, commonly called "Solomon's Stables," have been removed, and the floor of the substructions levelled. The eastern part is now not so high as before, the bottom having been brought up to a higher level, so that the holes on the corners of the piers once used to fasten animals and the mangers between the piers have disappeared, *i.e.*, are buried in the ground; so these substructions look now more clean and regular, but much less interesting. Some windows have been made in the south wall, and there is now full light even in the "triple passage." One of the three passages is walled up, and its northern part no more visible, and the middle one is opened at its northern end, so that people may go in and out there. Besides the arch and underground passage, for the greater part hewn in the rock, discovered by Mr. Lees and Mr. Hanauer, nothing else of interest has been found.

The visible portion of the arch extends about 12 feet north and south,

but the arch was once much broader, as I could easily observe. According to my measure, it was 38 feet from its southern commencement (G) to the northern corner, and very likely also goes some feet behind the corner, as the masonry there is more modern. The southern edge of this arch will have been 80 feet from the outer surface of the south wall of the Haram, and its north end about 120 to 125 feet from the same point. Robinson's arch is, from the south-west corner of the Haram wall 39 feet, and being 50 feet wide, ends at 89 feet. The spring of the arch in the eastern wall is 79 feet from the southern corner, and being 23 feet wide ends at 102 feet from the corner.

Mr. Lees measured the curve of the remains of the arch, and found in a 4-feet segment a curve of  $3\frac{1}{2}$  inches, which would give for the arch a span of about 13 feet.

I am sorry to say that the opening to the newly-discovered rock-cut passage I found walled up, so that I could not take the bearings. Nothing else can now be done in the stables.

#### EXCAVATIONS AT THE GOLDEN GATE.

The building of this gate stands now on three sides quite free, as the earth round it has been removed to a depth of about 30 feet, and for about 20 feet wide. Against the earth beyond a wall will now be built to keep it up. This wall will be about 16 feet distant from the building, so that one may walk round the three sides. In the portion of earth removed *a great many graves* were found, in a level a few feet above the flooring of the gate. All these graves are in a direction from west to east; all are lined with stones round about, and covered with stone slabs. All of them had still bones and mould, and seem to have been made in time of peace—not in haste or a time of tumult. So I am inclined to think they are very likely Christian, and from the time of the Crusaders. The workpeople told me that nothing else than bones were found in them; no crosses or any such things.

#### TOMBS AND OSSUARIES AT RUJM EL KAHAKIR.

In the Jerusalem volume, Part ii, pages 342 and 343, under the number 29,<sup>1</sup> this heap of stones is mentioned without further notice. Recently the proprietor of the ground, a Muhammedan of the city, being about to enclose his property with a dry wall, opened the "Rujm," or stone heap, and made a deep trench in it, in order to get stones for the wall, but found nothing but rather small stones, the largest such as a man may carry. It is now clear that there are no "ruins" under it, but rock-cut tombs, and that others are also in the immediate neighbourhood, of which I will now report.

No. 1 is a rock-cut tomb, of which I send plan and section.<sup>2</sup> There is a way 7 feet 6 inches wide and about 15 feet long, cut horizontally into

<sup>1</sup> See also Jerusalem sheet of the large map.

<sup>2</sup> The map, plans, and sections which accompanied this report are in the office of the Fund.

the rock. This leads to a usual door a couple of feet high and wide, in a rock wall only 15 inches thick. I found it locked with a new iron door, but the proprietor opened it for me. It was full of those little stone cases with human bones and mould. The room is 11 feet long and 8 feet wide and about (on an average)  $5\frac{3}{4}$  feet high. It has on its west side one *loculus* 7 feet 6 inches deep, and on its north side two 7 feet deep; the one in the north-western corner is a little declining. The cases were not all found here, but several in other places, and now simply stored here. They are of the usual form, and with the already well-known ornaments on the front, some of the lids are flat, others domed or pyramidal. I found no inscriptions on them. The largest is 2 feet 8 inches long,  $11\frac{1}{2}$  inches broad, and 1 foot  $2\frac{1}{2}$  inches high; the smallest 1 foot 2 inches long, 8 inches broad, and 9 inches high.

Thirty-nine feet north is another group of tombs. The first room is 9 feet each way sunk into the rock, and once arched or vaulted, but now broken down. It has at the south-western corner two ordinary *loculi* 6 feet 6 inches deep, one on each side, and on the eastern side also two of the same kind. Towards the north is a door leading downwards into another chamber of the same size, but with benches on three sides, 2 feet 3 inches high, and 2 feet 6 inches and 3 feet 6 inches broad. Towards the east are two *loculi* and one opposite in the west; also one in north wall, but only 4 feet 6 inches deep. The roof is rock. This room had been plastered inside with lime and chippings of Kakooli stone, which gives a curious appearance. As the rock is soft and brittle, it seems the plastering was made to protect it. On the field round about these tombs I saw many pieces of broken "stone cases," such as described above; also several of the closing stones of the *loculi*; they are heavy blocks, pinned on one side, so as just to fit the opening of the *loculi*, and some had been used for doors.

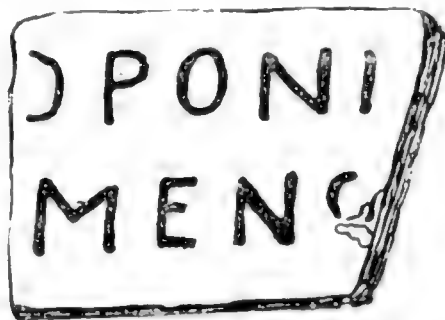
At No. 3 on the map, just under the large "Rujm," are very old rock-cut tombs, of which Sheet iv gives a section and plan. The entrance is from south, going northwards, and a few steps down into an open court 30 feet long; its breadth I cannot tell, as there is a large heap of stones in it, but I estimate it at 20 feet. In its middle, towards the north-west wall, is a square opening leading into a rock-hewn chamber 8 feet wide, 16 feet long, and 8 feet high, without any *loculus*. Opposite the door is (close to the following) another door leading to a second room, which is 14 feet long,  $12\frac{1}{2}$  feet wide, and 7 feet 6 inches high. Its flooring is 4 feet 2 inches lower than the first. On each of three of its sides are two *loculi*, which are rather unusually deep, from 8 to 10 feet (the deepest or longest which I have ever seen), and on the fourth side again a similar door leading into a further chamber, the third, 11 feet 3 inches by 12 feet 6 inches wide and 6 feet 6 inches high, its flooring 2 feet lower than the former. It has one *loculus* on the left wall, and two in the right; one is in a slightly slanting direction, the other is rather short (6 feet) and very wide (5 feet) and high (3 feet 9 inches). On the inner wall, also close to the following, a similar, but narrower door, leads into the fourth chamber,

which measures 8 feet in each direction, and is 6 feet high, and looks somewhat rough, as if not quite finished. Its flooring is also 2 feet deeper than the former, so the sun rays may at a certain time of the day fall even into the innermost. I could not find or see any bones, so this tomb must have been rifled long ago. Shepherds keep their flocks during stormy nights in it. In some places the rock is damaged.

About 200 feet south of this (marked No. 4 on map) is another site of tombs, shown on Sheet v in section and plan. A flight of rock-cut steps leads northwards down into an open court, 10 feet wide each way, and with rock walls round 7 feet high. Close to the western wall, on the lowest step, which is broad and high, is a small rock-cut pool, 2 feet 7 inches wide each way and the same deep. In the flooring is on, and partly under, the eastern wall of the court, an oval-shaped cistern 6 feet deep, in diameter 6 feet, and 3 feet 6 inches at the middle of its height, where it narrows upwards.

From the court in the north wall, and close to the flooring, an ordinary tomb door leads 2 feet 6 inches by three steps down into a chamber, 10 feet 3 inches wide each way, and 6 feet 6 inches high, all cut in rock. It has in the west wall one common loculus, and three in the north and three in the east wall, in which were found several of the well-known stone cases (*ossuaires*), and some broken slabs with inscriptions. The proprietor of the ground took me to his house, marked *d* on the map, the first of the new houses, and there showed me these things, also some pottery, small jars, &c. A piece of a slab or flat stone  $1\frac{1}{8}$  inch thick,  $9\frac{1}{2}$  inches broad, which apparently was originally 12 inches broad, and at least 1 foot long, bears engraved letters in two lines, as the copy will show.<sup>1</sup> As I had no paper with me for making a proper squeeze, and heard that Mr. R. Lees had already made such, and sent it to the Palestine Exploration Fund, I thought it not necessary to do more than simply to report on it.

Another is a hard reddish-looking and somewhat thicker piece of a flagstone, with a very incomplete inscription in Greek letters. It measures 7 inches long by 6 inches broad. The letters are large and deeply engraved.



INSCRIBED SLAB FROM RUJM KAHAKIR.

No. 3 is a soft stone slab, having apparently once formed the side of one of those repeatedly mentioned stone cases.

<sup>1</sup> See Professor Clermont-Ganneau's paper, page 240.

As shown on the Ordnance Survey Plan  $\frac{1}{100000}$ , there is a kind of plateau, or a high level ground, enclosed within a series of stone heaps made of small stones, which appear to have been gathered from the surrounding ground, and arranged in regular lines on the declivity of the plateau. Of which heaps the "Rujm Kahakir" is the largest and highest (*i.e.*, most prominent) and the most southerly; from its top the land is level northwards, and also north-eastwards on the top of the stone heaps, and the whole is artificial, I cannot help thinking *that this is the Roman camping ground* of Titus! According to Josephus' description (Bell. Jud. 5, 2, 3) it was a "plain," not the top of a hill or ridge; the temple to be seen there, and 7 furlongs from the city. The "Rujm Kahakir" is (according to the Ordnance Survey map) 5,200 feet distant from Damascus Gate. If we take for the outer works of the city, as ditch, &c., 200 feet, there remains 5,000. And as a furlong, according to Smith's Bible Dictionary, was 607 feet, it makes about  $8\frac{1}{2}$  furlongs. The top of the ridge at the Nâblus road is 1,500 feet farther distant. It has also to be noted that the southern row of the said stone heaps extends exactly eastwards to the Nâblus road, and that there seems east of this road a similar place, as if the camp had been divided into two parts.

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LETTERS FROM THE REV. J. E. HANAUER.

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A SUBTERRANEAN PASSAGE IN SOLOMON'S STABLES.<sup>1</sup>

The earth that had accumulated during centuries in the vaults at the south-east angle of the Haram area has been removed, and a portion of a massive wall, built of stones like those underneath the "Cradle of Jesus," was observed by Mr. Lees to have been uncovered. It is of four courses, each about 4 feet high, the upper course forming the spring of an arch. It runs northwards parallel to, but about 86 feet to the east of, the arched passages running northward from the Triple Gate. I think that this discovery is important, and will have a bearing on the arguments concerning the real site of the Temple. At Mr. Lees' invitation I accompanied him to the spot, and was so fortunate as to make a discovery, which I will endeavour briefly to describe.

Whilst examining the large stone, I noticed at the foot of the wall, and at a point 18 feet from its northern end, a hole about 15 inches long and 10 inches high, and looking as if a small dog or jackal had been burrowing there. It seemed to be of some depth. Having succeeded in obtaining a small candle-end, I lay down on my face, and, on looking in, found that I was peering into a passage below me, running with a slight downward slope towards the south-west. The passage was about 8 feet high, and wide enough to allow a person to walk along it with ease. I threw off my coat, and, after considerable difficulty, succeeded in squeezing myself, feet foremost, through the hole, and then climbed down into the passage. The side walls were formed of rough rubble, uncoated

<sup>1</sup> See Plan, page 198.

with cement, the roof of flat stones, "sawakeef," laid across. Following it for 13 paces (say about 39 feet), it suddenly widened, and I found myself inside a long artificial cave gallery, or tunnel, roughly hewn in the rock, and turning slightly more to the left—that is, southwards. Stalactites were hanging from the roof, and the floor was covered with a snow-white calcareous deposit. Pick-marks were plainly visible on the walls, and from their curve downwards, it was clear that the miners had tunnelled in the direction of the passages under the Triple Gate. The place was certainly not part of an underground quarry, for, though I looked, I nowhere found traces of beds from which blocks had been removed. Such beds are common in ancient quarries throughout the country. Seven paces (21 feet) further I found a large recess on the left. It may have been the entrance to a side gallery, which had been blocked up.<sup>1</sup> Twelve paces further (36 feet) brought me to the end of the tunnel. It was an unfinished work, very roughly hewn, as if made in great haste. At this spot it was 8 feet 8 inches in width; at the farthest end a long, low horizontal crevice, probably made with crowbars, tapered away into the rock wall. I cannot help thinking that what I found may be a trace of the unsuccessful tunnelling operations of the stone-cutters of Simon the Tyrant, the son of Gioras (Jos., "Wars of the Jews," vii, 2). The masonry tunnel, now blocked up at its eastern end (under the hole I entered by) by a rough wall built across, would strikingly answer to the description: "Now, as far as had been digged of old, they went onward along it without disturbance," whilst the unfinished rock-cut gallery, with its steady downward slope, was undoubtedly like the place where "they dug a mine underground, and this in hopes that they should be able to proceed so far as to rise from underground, in a safe place, and by that means escape; but when they came to make the experiment, they were disappointed of their hope, for the miners could make but small progress, insomuch that their provisions, though they distributed them by measure, began to fail them."

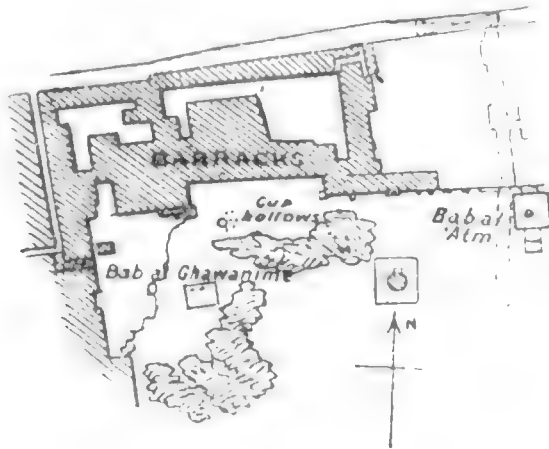
Retracing my steps, I called to my companions (Mr. Lees and Mr. C. Hornstein), and advised them to come down. They did so, and after examining the place and taking the measurements, we found it necessary to retire, as our candle-end was nearly used up. If it was rather difficult to get in, it was much more so to get out. I was the stoutest of the party, and after climbing up to the entrance hole and putting my head and one arm through, I was caught like a snake in a noose. I could neither get backwards nor forwards, and though several days have elapsed since then, my ribs, elbows, and knees still ache in consequence of that fearful final wriggle to get out. In fact, I might be wriggling still had not the sheikhs of the Haram caught hold of me by the head and shoulders and pulled me through. The sheikh of the mosque told me he was going to close the hole up next day, and asked me to tell Mr. Schick about it.

<sup>1</sup> Just here a hole in the rock roof, as if of a narrow shaft leading upwards was noticed. It was blocked with a stone.

## CUTTINGS IN THE ROCK IN THE HARAM-AREA.

When Dr. Lansdell, of Siberian and Central Asian fame, was here a few weeks ago, I had the pleasure of accompanying him to the Haram-Area.

Whilst we were looking at the rock-scarp on which the present Turkish barracks stand, I noticed that the earth lying on a part of the rock levellings (about twenty-five paces to the south of the spot where it appears that the entrance to a rock-tunnel in the scarp has been blocked up with masonry), had, as it seemed, quite recently been cleared away, revealing a circular rock-cut hollow or basin, about five feet in diameter,



PLAN OF NORTH-WESTERN CORNER OF HARAM.

(Showing Position of Cup Hollows.)

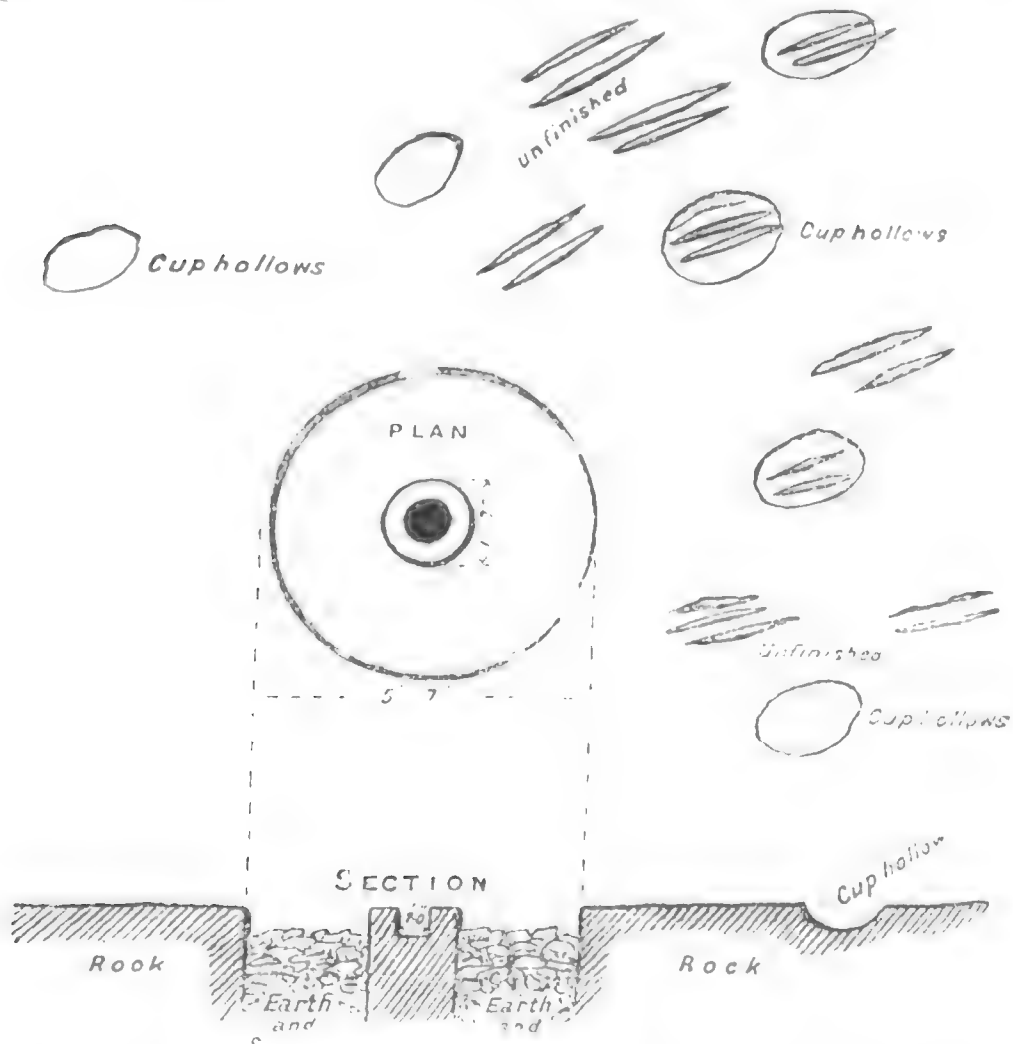
and surrounded by a large number of cup-shaped hollows, excavated in the rock.

Some of these had only just been commenced, and others were in a more or less advanced stage of completion, when the work of making them was relinquished perhaps centuries ago, so that it was possible to see how they had been scooped out. The method adopted was to cut two or three parallel gashes, about seven or eight inches long and about two inches apart, in the hard rock surface, then to remove the stone between these, and gradually to enlarge the hollow thus made.

In some of these hollows you can still see the bottoms of the gashes. In other spots the gashes alone scar the face of the rock. The rough sketch will give an idea of what I mean. As I had never noticed these curious cuttings before, and did not know whether anyone else had, it struck me that perhaps it would be as well to mention them, though, of course, in a place like the Haram, where at every step you notice something interesting, it seems absurd to call attention to such insignificant details. The enclosed rough tracing of the north-west corner of Haram shows approximately the position of these cuttings.

It seems to me that these hollows cut in the rock were made as Mr. Schick told me I would find by abrasion. I could not detect any

sign of chisel or iron tool, and the insides and bottoms of the gashes and



PLAN AND SECTION OF CUTTINGS IN THE ROCK IN HARAM AREA.

hollows are perfectly smooth and rounded, almost polished. I got measurements of the fountain-like cutting, and I enclose a sketch of it.

## REPORTS FROM MR. F. J. BLISS.

TELL EL HESY, *April 6th, 1891.*

You will see by the account that I have had to buy out a lot of crops, and got them for the price paid only after a tremendous amount of talk and bother. The beans we got cheap, but the barley was dear. You see the crops are rich this year, and the owners justly wish to be recompensed for the damage done to the adjacent crops not bought by us, and yet more or less encroached upon by our workpeople, who number about 100 at times.

The work has now gone on for three weeks. The first eight days I worked over the north section of the west town. I turned up all the

varieties of Amorite pottery; found burials of Phœnician jars similar to those found in Petrie's "cemetery," only very much deeper—quite 6 feet—found painted Phœnician pottery at all levels, except the lowest, with Archaic Amorite above it in some cases; thought I was finding walls over and over again, but a careful investigation always failed to prove face and direction in the consolidated and ruined mass of brick; uncovered a concrete wine press two or three feet deep, and found one house at the same level.

The consolidated state of this place, together with the failure to find small objects, decided me to leave it and attack the Tell. I had made the general investigations of the west town thoroughly, and to turn over the whole mass, *i.e.*, to investigate it particularly, would have taken all my time and money for this season. Starting at the *Well* on the Tell, I ran a line 60 feet to the west, and from thence a line 110 feet to the north, *i.e.*, above Manasseh's wall, and in the rectangle, bounded by the two lines, the wall, and the Tell east edge.

I placed my men in squares of 10 feet with orders to go down—the earth being taken to the edge by girls and women who throw it 100 feet and more into the river bed. First we uncovered a cemetery, apparently Arab from the bracelets, glass, &c. The cemetery being on top is, of course, later than any dwellings, and was probably used by the Bedawîn. At a depth of 4–6 feet we came on traces of a town very much ruined, but with a few frail walls which I have planned. The town contained a lot of deep circular ovens such as are now used. The pottery continued Greek and Phœnician. We are now uncovering a second town, part of it was burned by a fierce fire, but at the north end we have found walls in a capital condition, with a smooth brick face. In one room were several bushels of burned barley. In another place we find burned wheat. The pottery does not change much, and the red and black Greek pottery still turns up. There seems to be much more of it than Petrie supposed. The workmen are doing splendidly; I have seen Petrie's Egyptians at work, and I can still praise ours.

My father was astonished at the amount of work they do. I have the advantage of Petrie's picked workmen, and of a capital foreman who is most clever in tracing walls. Then they all work together and are not scattered about, as they were last year to be visited only once or twice a day. In ten days we have got to a depth in some places of over 10 feet, having worked 60 squares with rather less than 30 men. Each man has two girls to carry off the earth. When the tram comes we shall move west, and go down to the same level, thus uncovering the northern half of the Tell, as far down as we can.

The Effendi is very nice and friendly, and we get on very well. The Arabs are quiet, and we have almost no small worries. I have not been four miles from the tent since I arrived. Of course I shall visit Tell es Sâfi. To-day the weather is clearing, but we have had a horrible sirocco. I should mention that the item for wages includes a few shillings for backsheesh for small finds of pottery.

TELL EL HESY, *April 21st, 1891.*

I keep very busy. The tram has been set up and is a help, although, owing to the contracted condition of the hill, and the single track, it does not carry earth as fast as we can dig it up.

Nothing new since I last wrote, only more of the same thing—unearthing interesting rooms, with pottery, seeds, &c., &c., which of course I am planning. So many granaries and weavers places this old town must have had. One rude Greek inscription—a few letters; Greek pottery abundant. The harvest this year is early and rich—last year it was late and poor, owing to Arab wars. I fear we will have hard work to keep men, who are already deserting. We shall get men from the other villages, and may have to raise the wages a trifle.

If the Committee desire to make an autumn season here, it will hardly be safe before October (so Dr. Elliott thinks), but then work might go on if the rains were slight until near to Christmas. It is important for me to know before I leave, for the tram and tents, &c., should be stored at Gaza with the good Doctor if the work is to go on in October, so as to avoid the expense of carrying them up to Jerusalem and bringing them down again.

Of course I hope to stay on till the 1st of June, but the heat and the lack of workpeople may stop the work before.

I have decided not to uncover the whole of the north half of the hill, but the north-east quarter of it, as it is very difficult to get rid of the earth. So in a day or two we will be *going down* again, and I hope my next letter may report something interesting.

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TELL EL HESY, *April 24th, 1891.*

We are pushing the work hard this week before the harvest sets in; have to-day 39 men at work, each with two girls to throw away the earth, for now the earth carrying is the great problem. For Ramadan they are working splendidly. By to-morrow or Monday we shall begin to go down into the fifth period, as I distinguish now—

- (1) The Arab graveyard at the surface.
- (2) Rough stone dwellings, all fallen, with rough pottery.
- (3) The town of the ovens.
- (4) A lower town, full of granaries.

Number 4 had still some very good walls, all of which are planned. I think we have destroyed no wall unwittingly, as the men always cry "wolf" if the ground gets hard, and my man Yusif (who is a perfect treasure—intelligent, keen, honest, politic and enthusiastic), is very clever at detecting brick *in situ*, fallen brick and brick decay. The weather for the past ten days has been delicious.

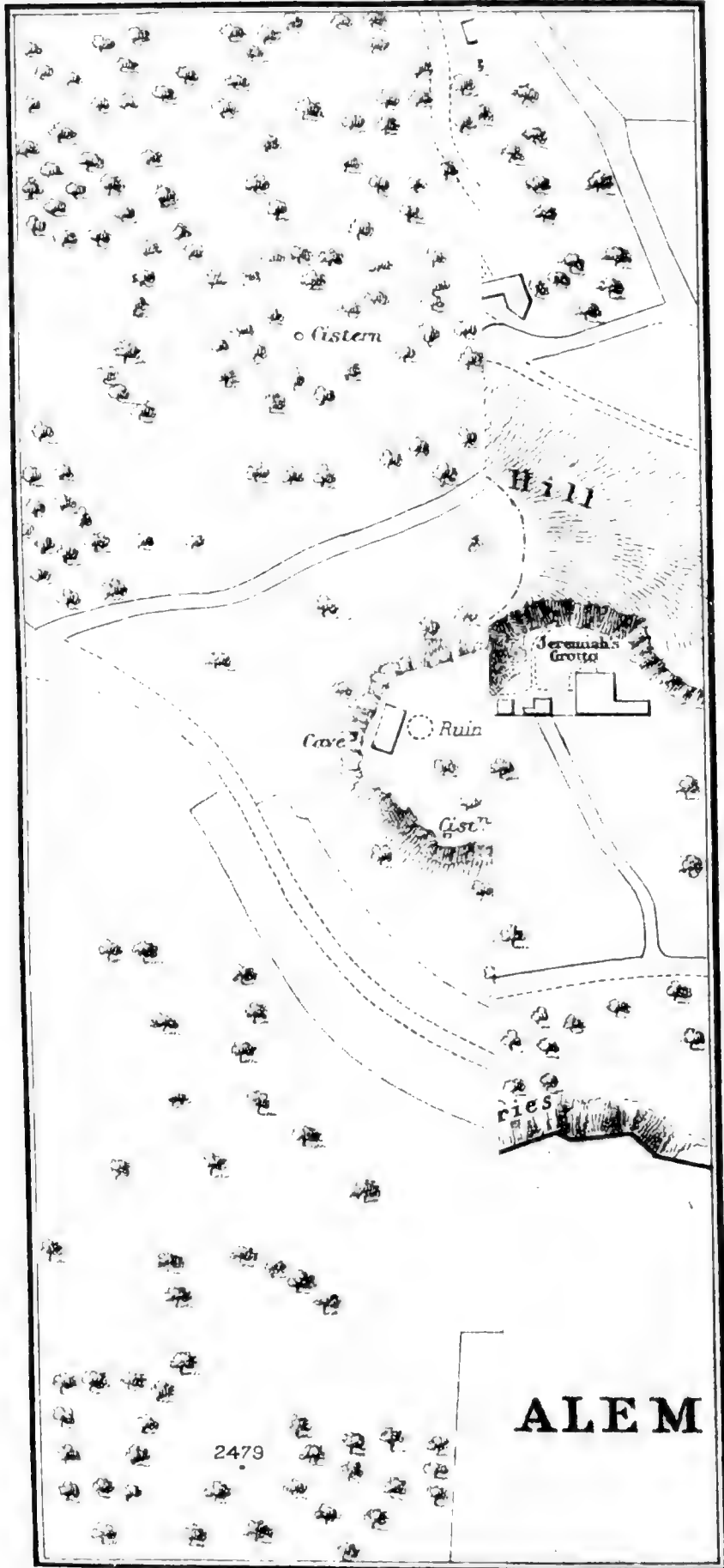
GAZA, *May 23rd*, 1891.

I am very sorry to report that I have been reluctantly obliged to close the work for the season. The harvest has proved a fatal rival to the work. As early as April 22nd we were obliged to fill our broken ranks of trained workmen with raw material from another village, and on April 25th (a Saturday) I announced that I would raise the wages from 9 Gaza piastres per day for a man to 11 $\frac{3}{4}$  piastres—over 30 per cent.—with a corresponding rise in the girls' wages. Well, even this increase failed to keep my trained workmen, of whom only seven came back on Monday, April 27th, and in their place we were obliged to put a lot of new raw workmen; a most unsatisfactory state of things it was, this seeing inferior labourers profiting by the rise in the wages, but I believe that it would have been hard to have secured a sufficient number even of these at the old price. At any rate, on Monday, May 4th, their numbers were much depleted, many having gone off to the barley harvest. Monday, May 11th, only nine men came, with the girls to carry the earth, and the quality had fallen off quite as much as the quantity—old men and little girls, the maimed and the aged. The work got most unsatisfactory. We were digging in a section more than 100 feet square, which had to be lowered pretty evenly, and which, at any rate, had to be left even, for the sake of next year's crops. Of course the Fund expects to return in the autumn, but in the meantime the owners of the land have a right to demand that the place be kept in a state for ploughing—indeed, I would not have felt it right to leave it otherwise. This hampered the work at the end, for in our uncertainty from day to day as to how many men might come the day after, we hesitated to go deep in any one spot for fear we would be left with an irregular plot of land with no one to level it. With a number of trained workmen back again in the autumn, we will in a couple of days be able to do as much work as was done in the last week and a half—and, of course, at far less cost. Our inability to work as late as Mr. Petrie did is owing to the peace among the Arabs, which has enabled them to sow full crops, which their peasant partners reap. The harvest also is earlier. For weeks past we have seen processions of peasants from distant villages pass the Tell on their way to the Arab encampments. First came the lentil crop, then the barley, and now the wheat has begun. I paid off the men Friday, May 15th. The next day visited Tell es Safi. I should say that the place was in just about the same condition as when Mr. Petrie visited it. But more of this later. We began to send in the tram stuff Monday, and by Thursday everything was in store here. Dr. Elliott is most kind. As to work in the autumn, I have written Mr. Dickson at Jerusalem, asking him if he will kindly represent to the Governor the necessity which occasioned the temporary cessation of the work. The law on excavations says that the Firman is null if the work is stopped for two months, but the blanks for permission say that the Firman is null if the work is stopped for more



# PLAN SHE'

THE EXPLORATION FUND.



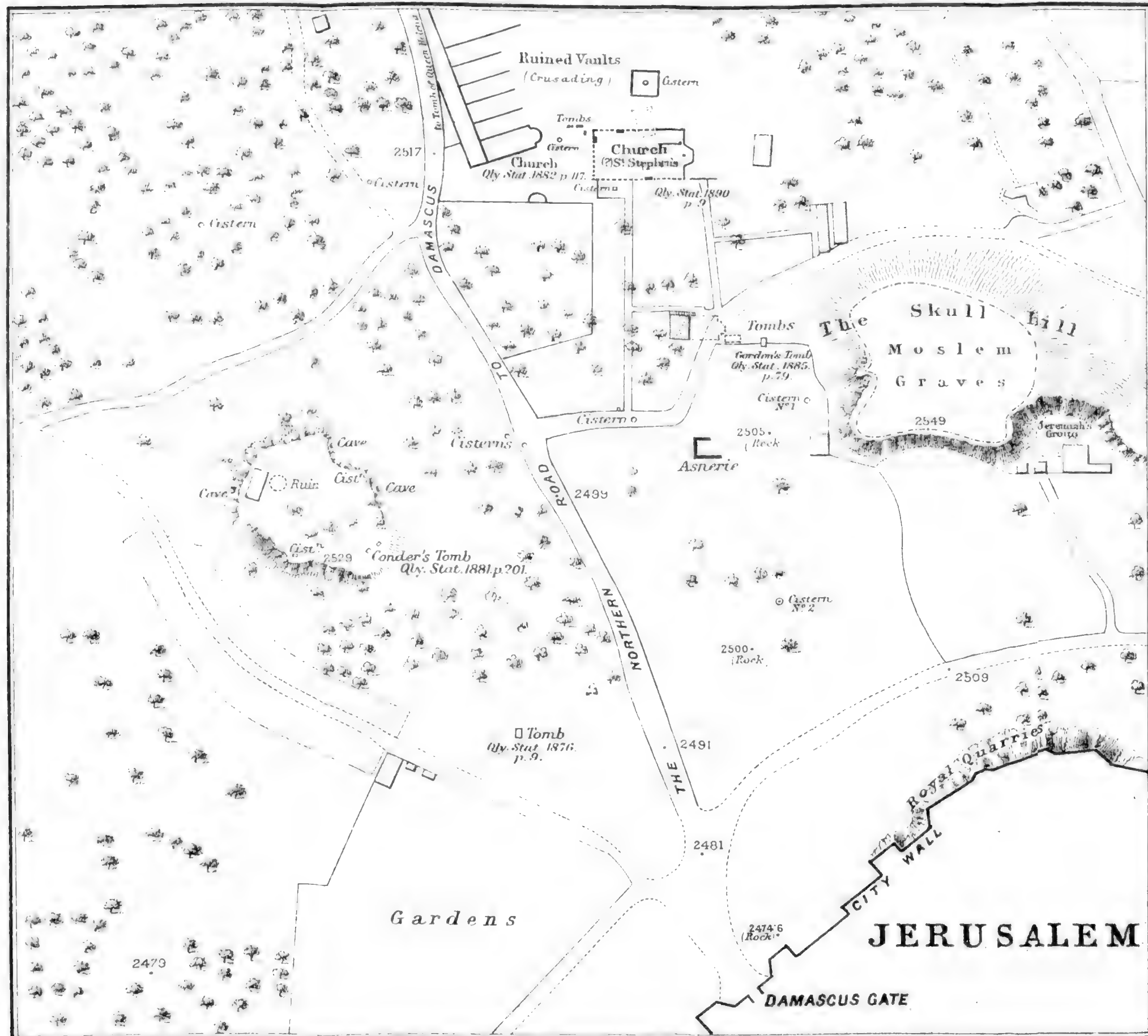
Traced from O.S. plan, and additions made by G.A.

E. Weller, lith

100 0

Nº 1.  
PLAN SHEWING POSITION OF THE TWO CHURCHES N.OF DAMASCUS GATE.

PALESTINE EXPLORATION FUND.



Traced from O.S. plan, and additions made by G. A.

Scale 100 0 100 200 300 400 500 600 700 800 feet

E. Weller, lith

than two months *without reason*. The harvest, the heat of summer, and the malaria causing typhoid from which the Arabs flee, will be represented to be sufficient reasons for prolonging the vacation to late September. I hope very shortly after my arrival in Beirût, to send in my report for the season.

## RUINS OF CHURCH ON THE SKULL HILL, JERUSALEM.

DURING the last few years building operations to a large extent have been carried on in the environs of Jerusalem, and several objects of interest discovered during the attendant excavations have been duly noted from time to time in our *Quarterly Statements*.

Amongst these discoveries was that of the small Crusaders' Church near the road, north of the Damascus Gate, a full description of which by Lieutenant Mantell, R.E., together with drawings of details of great interest, were given in the *Quarterly Statement* of January, 1882, p. 117. It is marked (CHURCH) in the annexed plan, No. 1.

The remains of the Crusaders' Church still exist as so described, but the stone on which were the very interesting paintings (representing our Lord and His Disciples) has been exposed to the air, and only faint traces of them can now be seen.

The land to the eastward of this Church was purchased some years since by the French Dominican Friars, whose excavations for the erection of their buildings soon exposed one of the most interesting series of tombs near the City.

They have been preserved by the Friars with great care and at considerable expense. Continuing their excavations westward, a trench 8 to 10 feet deep uncovered portions of a tessellated pavement in good condition, and composed entirely of different coloured marbles.

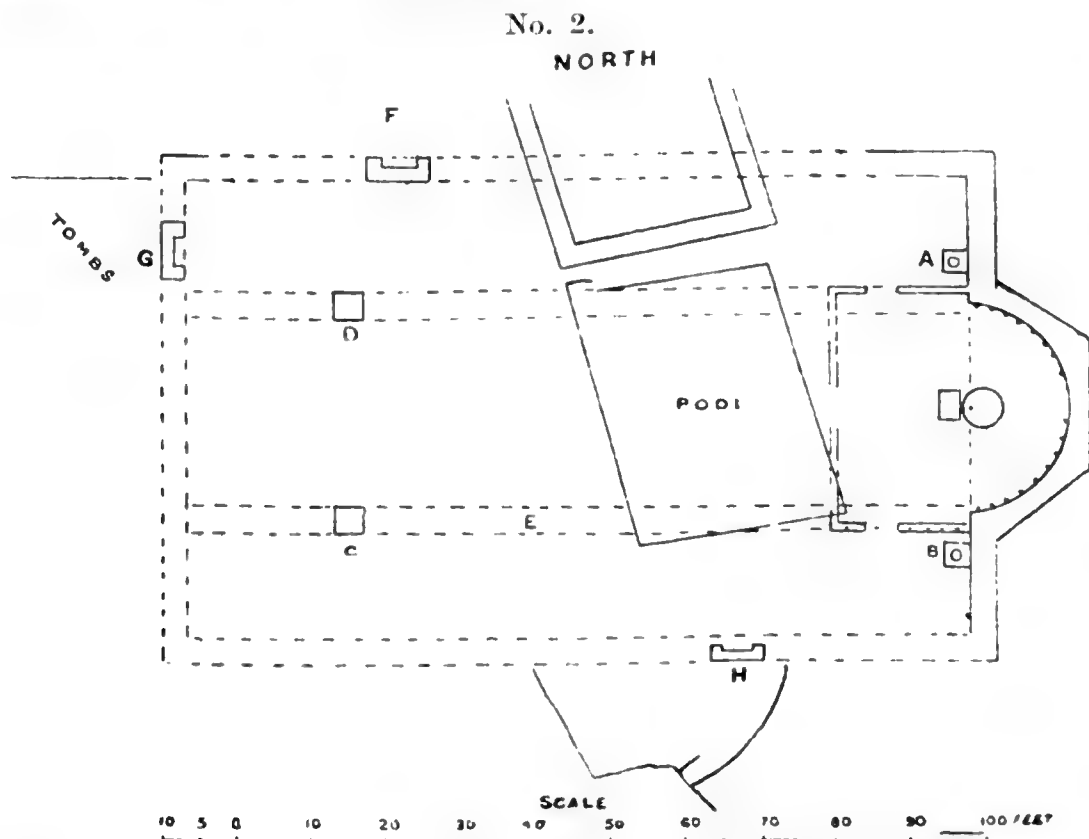
I was enabled to see this in 1886, owing to the kindness of Dr. Selah Merrill, the well-known author and American Consul at Jerusalem, who had specially noted it, and so much of it was then exposed as to show that it was the pavement of one long corridor, or other apartment, at least 50 feet long. But there was nothing in the design of the mosaic or any of its surroundings to disclose the nature of the building.

Since then, however, the excavations have so far proceeded as to uncover the greater portion of it, and when I saw it again last year it was clearly shown to be the remains of a Church, presenting several peculiarities of much interest.

It is on the well-known Skull Hill and north-west of Jeremiah's Grotto, and about north of the tomb suggested by General Gordon, as probably

that of our Lord, and so indicated in the sketch, &c., given in the *Quarterly Statement* of April, 1885.

The remains of the Church are shown to a larger scale on plan No. 2, which is from a careful drawing made by Mr. Schick, and from measurements taken by Mr. Petrie and myself.



It was evidently three-aisled, with an apsidal eastern end to the centre and square ends to the other aisles, the total length, exclusive of apse, being internally about 105 feet and the breadth 65 feet, being thus about the same width as St. James', Westminster, but 20 feet longer. The fine Church of St. Anne at Jerusalem is only 90 feet long.

It will be seen that the site of this edifice has been interfered with in a very singular way by two deep cuttings in the solid rock.

The southern one is cut perpendicularly down to a depth of 16 feet its shape being irregular, averaging about 36 feet by 27 feet. The northern one has only a trench dug round it, and Mr. Schick is no doubt correct in saying that these excavations were intended "to make a tank or pool, and to quarry stone for building at the same time."

It is tolerably certain, however, that the pool was never used as a tank, as a careful examination shows no trace of any cement lining.

It is unnecessary to enter further into the purpose or date of these rock-cut excavations, because they do not seem to affect in any way the description of the Church, except that they were supposed by the Friars to point out the site of St. Stephen's Tomb—but not the slightest trace of this has been found.

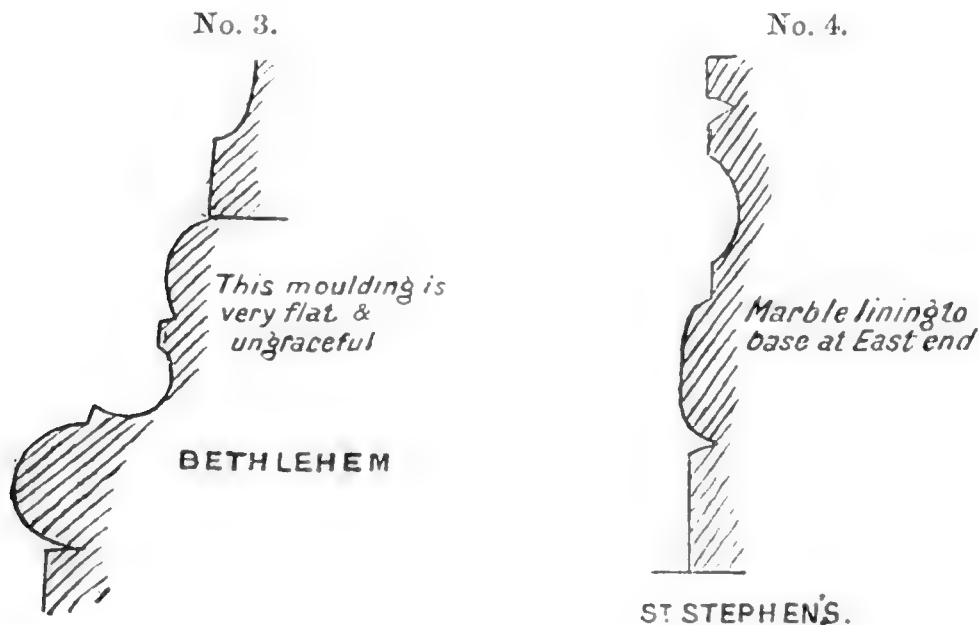
At the western end of the Church the wall has nearly disappeared,

but there are sufficient traces remaining to show its position, which seems to have been fixed by that of some ancient tombs shown near G on plan No. 2. One of them has been closed by a rolling stone.

The positions of the two aisle columns to the west are well marked (their foundations still remaining at c and d), and the Friars assured me that another one had been found at e, although again covered up. I could not, however, fix its *exact* position.

The sites of any other columns on the north side were still unexcavated when I last visited the place, and, of course, the pool (now entirely cleared out) has obliterated all traces of any work on its site.

Very fortunately one moulded base has been found, evidently belonging to the column mentioned below, its section being like those in the Basilica at Bethlehem (*vide* No. 3), the upper torus of which has a peculiar flat and ungraceful form.



A long length of one column has also been preserved ; its diameter of 3 feet, supposing it to be Corinthian (as in all probability it was), would give a height, including base and capital, of about 30 feet.

The three door sills at F, G, and H, show the probable place of the old doorways.

But the most interesting part of the Church, and, fortunately, the best preserved, is the eastern.

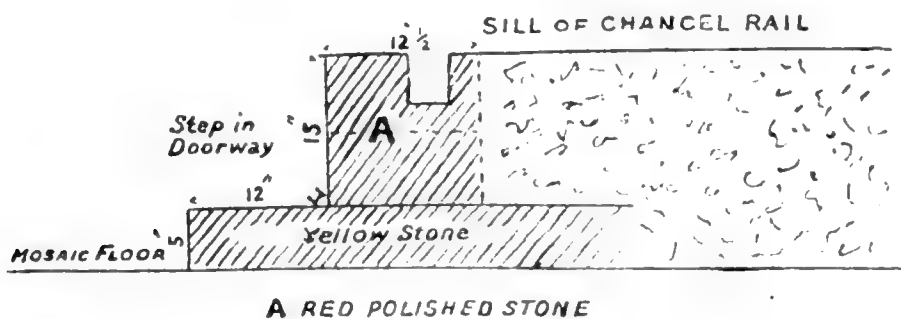
The stonework of its walls has been, indeed, to a large extent removed, but their external outline has been curiously preserved by a coating of plaster with which they were originally covered, and which now adheres tenaciously to the *debris* which lies against them, showing with complete distinctness the mark of every stone and joint.

I have not met with such another instance of this in any excavations, but Mr. Petrie tells me that he has found such an one in Egypt. There is not anything to indicate the precise form of the interior, but there can scarcely be a doubt that the centre was the usual circular apse.

At A is a square base of rough stone, but with a moulded marble casing fixed by bronze clips on one side, which still remains as I have drawn. When perfect it would have been 2·7 square.

A corresponding base, but stripped of its casing, is at B. A portion of a column of white marble, broken, but 6 feet long, was found near. But it is only 12 inches in diameter, and could not therefore have been one of the aisle columns. Still more interesting are the distinct remains of the chancel rails (V. No. 5), showing the outlines of the choir and the steps leading to it.

No. 5.

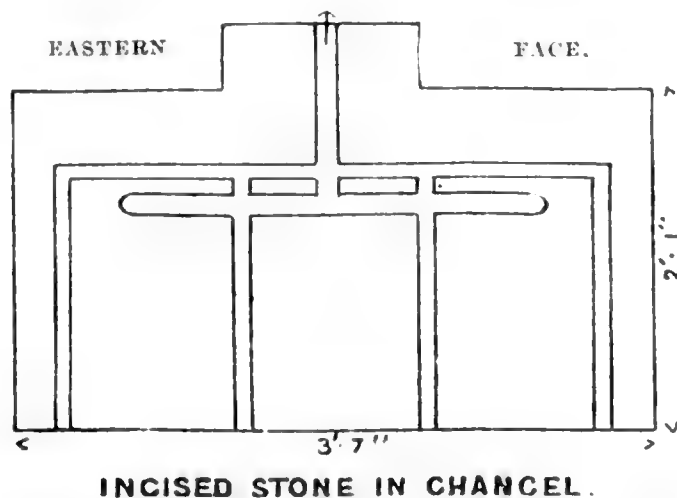


The north and south sides of these are evidently *in situ*, but the western end was formerly further to the west than at present, as is clearly shown by the marks on the sills at each side.

The steps from the general level of the mosaic to the chancel floor are *in situ*, and so is, to all appearance, the curious slab in the centre of the apse.

There are no other indications of the original floor of the chancel, but at the east of the slab was found a large stone, roughly cut to a circular form, 5·2 in diameter and 2·7 high. Both its upper and lower surfaces were quite flat and even.

No. 6.

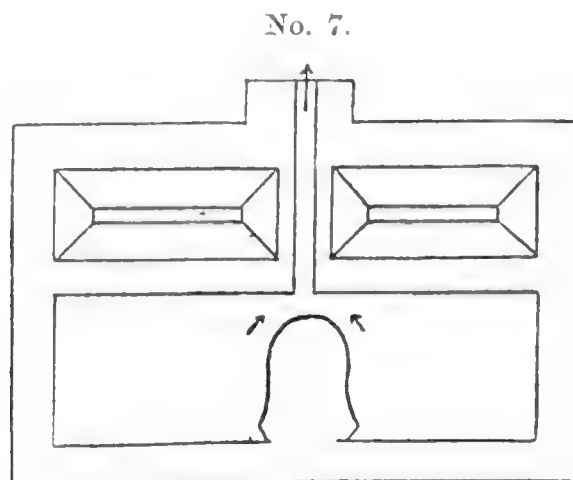


The slab is shown to a large scale in drawing No. 6, and it was found sunk to a somewhat lower level than that of the chancel floor.

The shape of the slab with its curious lip, and the channels made evidently for the purpose of receiving and pouring off liquids, will strike anyone conversant with Egyptian antiquities as having strong resemblance to the tables of offerings, numbers of which are in the Museum at Gizeh, and many also in the Museums of Turin and Paris.

In our own (British) Museum there are several such tables, many of which have a short leg at each angle. But this is not seen generally, and the slab at Jerusalem does not have it.

I append a sketch (No. 7) of one of these Egyptian tables (all of which were connected with Pagan worship), which I made at the Gizeh Museum at Cairo.



**EGYPTIAN TABLE OF OFFERINGS  
FROM MUSEUM, GIZEH.**

It shows the peculiar lip which all these tables have, and also the channels for receiving and running off the liquids.

I know, personally, of no example of such a slab in a Christian Church, and I cannot learn from those of my friends who are best acquainted with Christian antiquities that such another is known in Europe.

Mr. Butler, in his well-known book on the Coptic Churches in Egypt, describes several altar slabs with channels for washing, and also particularly one at St. Pudentiana in Rome of the 4th century. And the "Encyclopédie Méthodique Antiquités, &c.," vol. i, p. 377, also notices that "Quelques autels antiques sont creusés en dessus et percés de côté pour recueillir et laisser écouler ensuite les libations."

But the peculiar lip is absent, and there are no crosses in the Jerusalem slab such as one would expect to find in an altar stone, in any but a Coptic Church.

But Mr. Butler also mentions that beneath the Greek altar there was always a place to carry off the rinsings from the priests' hands, and the water used for washing the sacred vessels, and in reference to this I find many notices in ecclesiastical writers, *e.g.* :—

In Durandus, lib. i, "De Altaris Consecratione"; "Ecclesia quoque iterim aspergitur et aquæ residuum ad basim altaris funditur."

Again, in "Martigny's Dictionary of Christian Antiquities," he describes under the head of Autel (page 60), "A la base de l'autel se trouvait une piscine où le prêtre se lavait les mains, &c., on y jettait aussi l'eau qui avait servi à laver les vases sacrés."

The absence of crosses appears to me to show that the slab was not an altar, but that it was used as our piscina, to receive the washings. But the lip is a form which, so far as I know, is unique in a Christian Church.

The circular stone is equally curious.

Bingham, in his "Antiquities" (vol. ii, section viii), speaking of the French Council in A.D. 509, notices that "whereas before that time (in France) they were in the form of tables, they now began to be erected more like altars, either upon a single foot or pillar in the midst, &c., or upon an edifice erected like a tomb."

Such a tomb-like edifice exists in the subterranean Church of St. John the Baptist at Jerusalem (v. "Notes to Ordnance Survey," p. 59), but I have no recollection of an altar stone "on a foot or pillar."

Professor Middleton, however, states that there is one so constructed at the very early Church of St. Angelo at Perugia.

This example (which has escaped my notice) may certainly be taken as a confirmation of Bingham's statement. Probably, therefore, the circular stone may be considered as used for a similar purpose.

Finally, we have to consider the tessellated mosaic which formed the pavement of the church.

This is made of different coloured marbles, viz., white, black, red, yellow, and blue, there being no terra cotta or stone used anywhere.

The tesserae are  $\frac{1}{2}$  inch to  $\frac{1}{4}$  inch square, according to their position. The border is one of the ordinary Roman patterns, and the rest of the work is only peculiar as being very plain in design for so costly a material, no figures or foliage being introduced. The workmanship throughout to the border is good, but the tesserae to the main portion are laid very irregularly.

It is everywhere, so far as I could see, fitted to the walls, and was, to all appearance, laid after they were built.

For some clue as to the date of the floor we may turn to another example in Jerusalem, viz., in the Church of St. Cross, which is said to have been built by Justinian, and only partly destroyed by Chosroës. I have not seen this pavement, and only know it from a description kindly given to me by Mrs. Finn, and from Pierotti's drawings; but if these be correct it is very debased work, and the design very poor.

Many other mosaics are now being uncovered in the vicinity of Jerusalem, more particularly near the present Zion Gate, and these are of good workmanship, but plain, and much like that at the church which I am describing.

If we turn to other parts of Palestine we shall find, perhaps the best

example in that given by E. Renan in his "Mission de Phénicie," of a Byzantine Church about 2 leagues from Tyre, and said to have been built in the 6th or 7th century ; and there is an inscription which distinctly assigns the mosaic to that date. But in a long and careful treatise on the subject given by Renan it is clearly shown that this inscription is an interpolation, the mosaic itself being of a much earlier date.

We have, then, the following facts, viz. :—

That the church of which we have the ruins on Skull Hill was very ancient, as is shown by its single apse.

That the octagonal form of this apse, externally, proves that it was designed under Byzantine influence before the distinctive features given to it in the plan of St. Sophia at Constantinople, and nearly all later Byzantine works.

That the church was arranged according to the Roman rite, and with very antique arrangements of altar, &c.

That the pavement was Roman, and laid down at a time at which great activity prevailed in ecclesiastical work at Jerusalem generally, as is shown by other large remains of similar mosaic pavements in other parts near the city.

That the marble linings still remaining to the north-eastern base, together with the costly mosaic floor, show that this church was one of great magnificence.

There is no mention of its erection in the account of Justinian's work given by Procopius.

It appears to me that its authorship is explained satisfactorily in the annexed note, given to me for other purposes by Sir C. W. Wilson :—

"I do not think that sufficient attention has been given to the great building period at Jerusalem when the Empress Eudocia was there. She built St. Stephen's Church, and it was, too, about this period, or a little later, that I attribute the many Churches including that, in probatica, the Siloam Church of Antoninus, &c." The history of the Empress is well known. She married the Emperor Theodosius II, in A.D. 421, made a pilgrimage to the Holy Land in 438, and a short time afterwards began the erection of St. Stephen's Church, in which she was buried ; her death taking place in 460.

It appears to me that the remains of this church fulfil the conditions which we might expect at such a time, when Roman work had been influenced by Byzantine.

The position of the Church appears to agree fully with the requirements of this opinion.

It is situate on the commanding hill which is well known as the Place of Stoning, close to the Gate (Damascus) which was formerly known as St. Stephen's, and answers to the description given by the Russian Abbot Daniel (1106–1167 A.D.), who appears to have entered by the Nablûs road : "To the left, near to the road, there is the Church of the first martyr, St. Stephen—it was at this place that he was stoned by the Jews."

There is, however, the fact to be ceded that the pilgrim Theodorich (c. 1172 A.D.) says, in describing his tour from west to east, outside the walls of Jerusalem,<sup>1</sup> “before you reach the Northern Gate you find, upon a hill, the Church of St. Stephen, the protomartyr,” &c., &c.

The pilgrim Antoninus (c. 570 A.D.) makes a similar statement, so that we have his description of the site of the ancient church before the destruction of the churches by Chosroës, and Theodorich’s description to the same effect after its rebuilding by the Crusaders.

These accounts would, apparently, place the church on the hill to the west of the Damascus road and away from the Skull Hill, the position being that suggested by Dr. Chaplin, in the *Quarterly Statement* for 1876, page 9, and very close to the Tomb which Major Conder has suggested as being very probably that of Our Lord.

Some of the other pilgrims appear to support this view, but others place the site of the stoning and of the church in entirely different positions from the above, and the various statements are otherwise singularly confused and at variance with each other.

They are given clearly, and collated, in the Appendix A. to the description by the Abbot Daniel [P. Pilgrims’ Test. Soc.], and I will not attempt to reconcile them.

All that can, I think, be said at present is that we have no remains except those of the church which I have above described, which appear to fulfil the conditions of the Empress Eudocia’s Church.

The sarcophagus which was found on the Western Hill (V. *Quarterly Statement*, 1876, page 9), though of great size, was, I believe, quite destitute of ornament, and not likely to be that of an Empress.

The position of her sarcophagus may possibly be indicated by the chamber to the south of the church entered from it by the door II.

T. HAYTER LEWIS.

## THE HOLY SEPULCHRE.

By MAJOR WATSON, R.E.

IN an interesting note by Mr. Simpson in the *Quarterly Statement* for April, he has alluded to the idea that part of the original rock can be seen in the entrance to the so-called Holy Sepulchre, and has pointed out that this appears to require authentication. Having heard a similar statement made on several occasions, I took the opportunity when recently in Jerusalem, to make a careful examination of the so-called tomb with a view to ascertaining whether any rock was visible or not. After doing so I was

<sup>1</sup> Palestine Pilgrim’s Test. Soc., page 43.

quite convinced that no rock could be seen at any part of the structure. At one point of the arch, above the entrance inside, there is some plaster or cement of a brown colour, which might possibly be mistaken for rock, and perhaps this gave rise to the idea. The attendants at the Sepulchre were positive that no rock was to be seen, and stated that they believed that the tomb was below, and completely concealed from view by the pavement and by the horizontal marble slab, which is well represented in Mr. Simpson's sketch. There is a crack or joint in the centre of the slab, also shown in the sketch, and it is said that the holy fire comes up through this crack from the tomb below. But of this there is no satisfactory evidence.

The true position of the actual rock cannot be ascertained without removing the slab, which of course would not be allowed until it needs repair. It is to be hoped that if it is ever taken up for this purpose, some intelligent resident in Jerusalem may have an opportunity of examining the substructure.

## ON THE RELATION OF CERTAIN ARCH SPRINGINGS FOUND WITHIN THE AREA OF THE TEMPLE OF JERUSALEM.

By T. WRIGHTSON, Member Institute Civil Engineers.

ON the 26th February in this year I visited "Solomon's Stables," under the Temple area in Jerusalem, when my attention was drawn to an ancient arch springing, which occupied the position shown at A. B. on the accompanying plan, No. I (which is reduced from the Ordnance Survey.) I was informed by my dragoman that it had only been uncovered by the Turks within a few days, in moving the rubbish from the western to the eastern part of the stables.

The much more ancient appearance of the masonry as compared with the lighter and more recent arching forming the arcades of the stables which in this part rested upon the ancient springing, interested me, and hearing that only one or two Europeans had examined it before my visit, I was led to observe its peculiarities more than I should otherwise have done.

The arch sprang eastwards from a wall running north and south and forming one of the boundary lines of the somewhat irregular area of the "stables." The wall at this part forms a retreating recess 50 feet long, and is shown on the Ordnance plans made by Sir Charles Warren. Its face is parallel to, and 148 feet east of, the western wall of the passage leading north from the Triple Gate and about 187 feet west of the external face of the east wall of the Temple area.

The appearance of this venerable relic, is, I understand, to be described and illustrated by Herr Schick in the July *Quarterly Statement* of the Palestine Exploration Committee, so that I need not do more than



[ From a Photograph by G. E. Le ]  
 SPRING OF ARCH IN "SOLOMON'S STABLES," RECENTLY DISCOVERED.

state that the springing is supported by massive masonry which occupies the whole length of the 50 feet face. Many of the springing stones have been removed, but it is obvious from the character of the supporting

masonry that the south corner was originally the termination of the springing in that direction. At the north end a wall running east and west is built up to the face of the old masonry so that I could not be certain of this angle being the termination of the old arch northwards.

I had not at this time seen the springing at the south-west corner of the Temple area known as Robinson's arch, but when visiting this the following day I was greatly impressed by the similarity of the two springings, so much so that I could not divest my mind of the idea that they had originally formed springings of a continuous series of arches. What appeared to me to be against such a supposition was that the distance from the south end of Robinson's arch was only 39 feet from the outside of south wall at the south-west corner of the Temple boundary, whereas the distance of the south end of the newly discovered arch was 57 feet from the inside of the south wall, or 65 feet from the outside (allowing 8 feet thickness of wall as scaled from the Ordnance map of the Temple area,  $\frac{1}{500}$  scale.)

It seemed difficult to account for such a considerable deviation from parallelism with the present south wall.

In thinking the matter over I came to the conclusion that as the last found springing was stretching forward in an eastward direction it was possible that on the east wall, which was only 187 feet from the springing, there might be some indication of the end of an arcade if such a continuous series had ever existed.

I had to leave this interesting speculation to go down to the valley of the Jordan and the Dead Sea, but in returning a few days afterwards over the Mount of Olives I thought I saw the object of my search in a sharp vertical line near the south-east corner of the Temple wall on its eastern face, a little to the right of what is known as Christ's Cradle.

The same afternoon I obtained a "permet" to again visit Solomon's Stables, and took more accurate dimensions of the position of the new arch. I then went round to the outside of the east wall, and measured the distance of the strong vertical mark (which I had seen from Olivet) from the south-east corner. This mark is formed by a retreating offset in the masonry, which has been thought by some to mark the limit of a supposed tower at the corner of the Temple, but which resembles a similar offset at the west wall which marks the limit of the southern end of Robinson's arch. On laying down upon the Ordnance Survey the three positions, viz., the southern end of Robinson's arch, the southern end of the lately discovered arch, and the offset in the east wall, I found that they were exactly in a straight line on the plan. On examining the stones to the north of this offset I was surprised to find another ancient arch springing,<sup>1</sup>—two stones only remain, occupying 23 feet of length,

<sup>1</sup> See "Ordnance Survey of Jerusalem," Notes, page 25, and *Quarterly Statement*, 1880, pages 9-65.—[ED.]

and coming within a few feet of the offset, and had apparently, at one time, extended to the offset. The springing was sailing out eastward, in the direction of the Mount of Olives. I afterwards found that this arch springing and the offset had been fully illustrated in the splendid set of drawings of the Temple wall by Sir Charles Warren. (Jerusalem volume of the "Memoirs.")

What I wish to draw attention to is the remarkable fact that the southern ends of these three springings are all in one line, and in a line quite out of parallel with the south wall, being 71·6 from the south wall at the eastern end, and only 39·3 from the south wall at its western end.

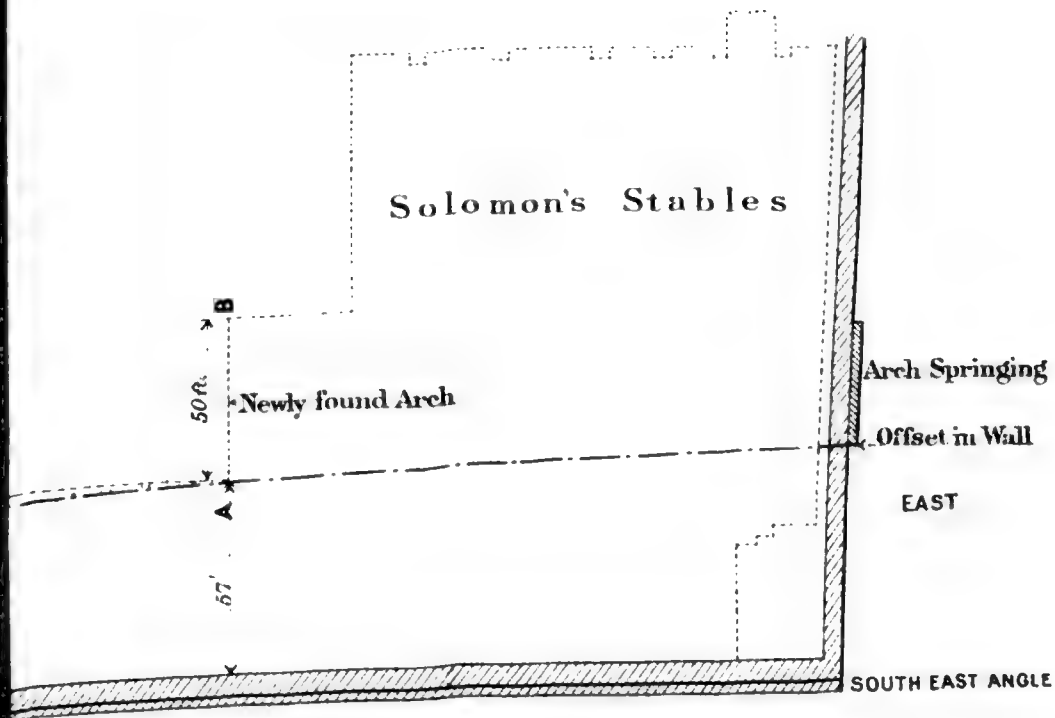
Another observation I have made appears to lend additional importance to this fact. Following my line westward it will be seen that it cuts the western side of the Triple Gate passage 60 feet 6 inches north of the exterior of the south wall. (See Plan I.) I have also marked the position on Plan No. II., which is a section of the Triple Gate, taken from "The Recovery of Jerusalem," page 230. It will be seen that the point of intersection comes immediately above a large stone, which is described as the foot of an engaged column, and considered to be *in situ* by Sir Charles Warren. It is illustrated in the same plate in detail.

This western wall of the Triple Gate passage is very ancient, and I think the explanation of this curious stone may be that one of the arches of the supposed series sprang from this wall eastwards, and formed an arched gateway into the Temple area, and that the peculiar shaped stone is the lowest and only left course of a pilaster or architrave designed to hide the more homely outline of the arch, and to give the entrance to the Temple a more noble and imposing appearance. We have therefore four interesting points, viz., the southern ends of the three arch springings described, and the curious stone in the Triple Gate entrance, all in an exactly straight line, about 922 feet long. We also have the fact that the breadth of Robinson's arch, 50 feet, corresponds with the depth of the recess from which the newly found arch springs.

These facts, coupled with the similarity in the appearance of Robinson's and the recently found arch springing, seem to favour the theory of a continuous series of arches having joined the eastern and western walls of the sanctuary at some early period.

If such a continuous arcade existed, whether this were a substructure or otherwise, it seems difficult to imagine that the builders could have erected so large a work without reference to the line of the sanctuary wall (an equally great work) lying only a few yards to the south, and if subsequent research proves the theory of the continuous arcade it will probably justify the view that the present southern wall was built at a later period and that it was an extension of the area of an older temple.

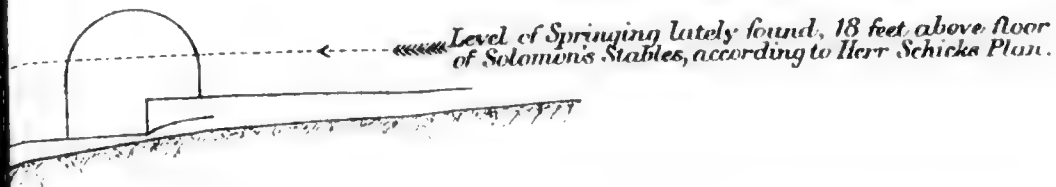
The level of Robinson's arch springing is 2387·5, that of the new arch springing taken by scale from Herr Schick's sketch 2397, or 18 feet above the level of floor of "Solomon's Stables."



500 Feet

in page 230.

Proposed position of Arch



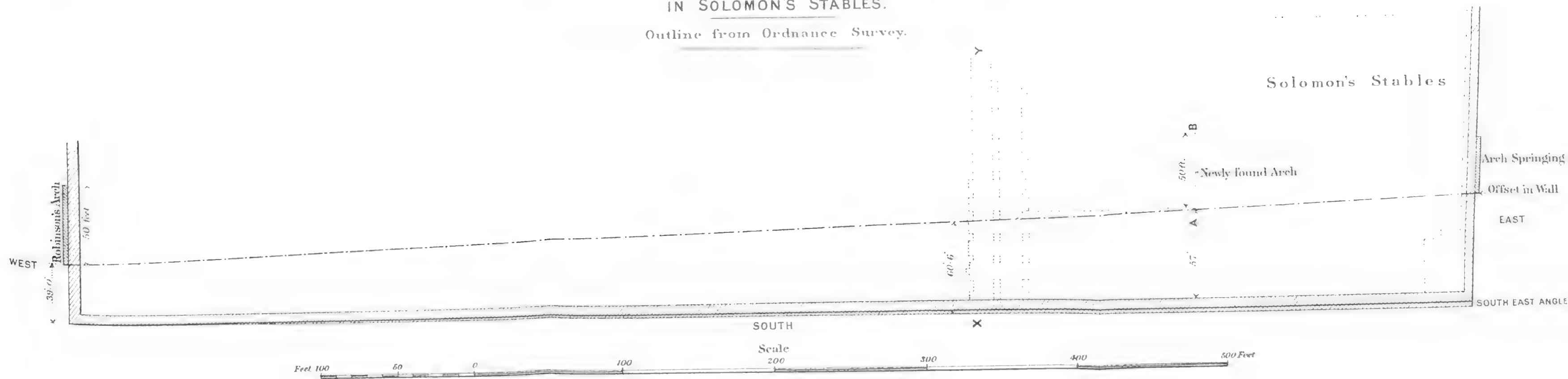
Western Arch of Triple Gate  
It leading from the same.

Scale.



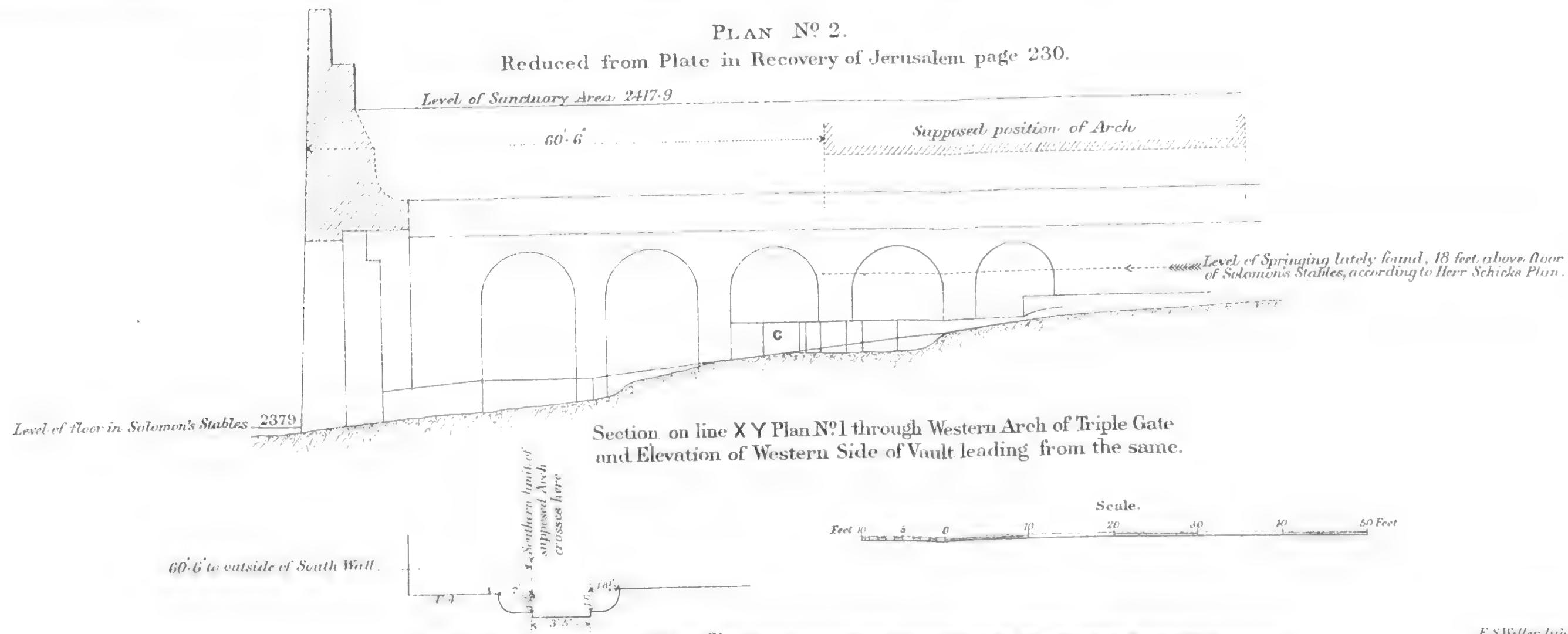
# MR. WRIGHTSON'S PLAN (Nº1.) SHOWING POSITION OF NEWLY DISCOVERED ARCH IN SOLOMON'S STABLES.

Outline from Ordnance Survey.



## PLAN Nº 2.

Reduced from Plate in Recovery of Jerusalem page 230.





The level of the springing from east wall ....	....	....	....	2372
„ floor of Solomon's Stables ....	....	....	....	2379
„ sanctuary area at this point ....	....	....	....	2418

With regard to the difference of level between the first two, viz., 9.5 feet. This is not at all incompatible with the floors which each arch supported being at the same level.

In crossing the deep Tyropean valley a longer span would be much more economical of material where the piers supporting the arches were so tall.

As the face of the rock rises, the piers supporting the arches would get shorter, and it would be much more economical under such circumstances to make the spans less; besides which shorter spans would be more convenient for supporting the weight of buildings above, which consideration would not apply to the valley arches. In making the spans less the springings would rise in level.

From Herr Schick's plan it appears there is a vertical distance of 21 feet from the level of the newly found springing to the level of the temple area.

If we assume semi-circular arches (as in the case of Robinson's and Wilson's, *see* plates on pp. 81 and 119 "Recovery of Jerusalem") this 21 feet would be made up of the thickness from crown of arch to level of Haram area, added to the radius of the arch span.

If we assume 10 feet of thickness we should want 11 feet of radius, or 22 feet span. If we assume a greater or less thickness, it reduces or increases the span accordingly. Thus, if we assume 12 feet thickness, we have 9 feet radius left, or an 18 feet span.

With regard to the springing from the eastern wall: Sir C. Warren explored the ground opposite up to 50 feet from the wall, in the hope of finding a pier as had been done in the case of Robinson's arch.

He says ("Recovery of Jerusalem," p. 151): "We were not far from the rock when searching for this pier, but not quite on it; it cannot, therefore, be said for certain that there was no pier for a bridge at this point, but the probabilities are against it." Colonel Wilson in his paper on the Masonry of the Haram Walls, Palestine Exploration, *Quarterly Statement*, January, 1880, says: "A few feet to the north of the offset there are two stones which form the springing of an arch and extend over a length of 18 feet. These stones do not appear to be *in situ*," and he dismisses the idea that they could have formed part of a bridge over the Kedron.

If a distinct relation of position is proved as between Robinson's arch and this eastern wall springing, it is a question whether Colonel Wilson's conclusion that the stones are not *in situ* can be maintained, and this taken in connection with Sir C. Warren's admission that he had not gone down to the rock, and could not say for certain that there was no pier, appears to rob the investigation of its conclusiveness.

I would only remark that if ever the question should be again

seriously investigated, the springing being 46 feet below the Haram area level would imply a longer span of arch than that of Robinson's, unless the roadway were at a lower level than the Haram area or the thickness over the crown of the arch much greater.

The chief observations in the above paper were communicated to the Palestine Exploration Secretary, also to Mr. Hanauer, in Jerusalem, in a letter dated March 6th.

Norton Hall,  
Stockton-on-Tees,  
May, 1891.

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COMPARISON OF THE MONTHLY MEAN HIGHEST  
AND MONTHLY MEAN LOWEST DAILY TEM-  
PERATURES OF THE AIR, AND MONTHLY  
MEAN DAILY RANGE OF TEMPERATURE IN  
PALESTINE AND ENGLAND IN THE TEN  
YEARS ENDING 1889.

By JAMES GLAISHER, F.R.S.

THE following discussion of the temperature observations at Saron and Blackheath is in continuation of those published in the *Quarterly Report* for April, 1891, pages 163—178.

TABLE VII.—Monthly Mean of the daily Maximum Temperature at *Sacrona*.

Months.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	58.5	71.0	61.1	64.4	60.2	62.3	64.7	63.4	61.7	64.2	63.2
February ..	65.5	64.8	55.7	62.8	60.3	65.3	67.0	64.3	66.1	67.2	63.9
March ..	66.4	68.4	68.8	70.5	66.5	70.1	67.7	67.9	77.5	73.8	69.8
April ..	75.2	77.6	72.5	72.8	77.8	73.2	73.0	78.0	74.7	74.1	74.9
May ..	80.9	80.1	75.3	76.7	77.2	83.4	76.5	80.2	78.2	82.2	79.1
June ..	83.8	83.2	79.6	83.1	84.4	82.8	86.0	83.9	82.4	84.4	83.3
July ..	87.3	86.2	84.4	84.4	85.0	85.7	86.0	85.9	88.5	88.4	86.1
August ..	89.0	89.9	86.6	88.2	86.0	87.1	87.9	88.5	88.4	88.3	88.0
September	88.3	88.1	87.2	87.7	83.7	87.1	87.2	86.0	87.1	86.8	87.1
October ..	84.7	83.3	83.3	84.1	81.8	85.6	84.1	88.2	88.1	86.8	85.0
November	79.9	75.0	76.5	74.3	72.8	76.5	73.2	77.8	69.5	70.3	74.6
December	64.8	66.2	68.9	65.7	70.9	70.1	68.3	70.1	63.8	66.6	67.5
Means ..	77.0	77.8	75.0	76.2	75.6	77.4	76.8	77.9	77.2	77.8	76.9

The extreme monthly mean high-day temperatures in each month are as follows :—

	the lowest was			the highest was		
In January	....	58°5	in 1880	....	and 71°0	in 1881
February	....	55°7	„ 1882	....	„ 67°2	„ 1889
March ....	....	66°4	„ 1880	..	„ 77°5	„ 1888
April ....	....	72°8	„ 1882 and 1883	„	78°0	„ 1887
May ....	....	75°3	„ 1882	....	„ 83°4	„ 1885
June ....	....	79°6	„ 1882	....	„ 86°0	„ 1886
July ....	....	84°4	„ 1882 and 1883	„	88°5	„ 1888
August....	....	86°0	„ 1884	....	„ 89°9	„ 1881
September	....	83°7	„ 1884	....	„ 88°3	„ 1880
October	....	81°8	„ 1884	....	„ 88°2	„ 1887
November	....	69°5	„ 1888	....	„ 79°9	„ 1880
December	....	63°8	„ 1888	....	„ 70°9	„ 1884

Thus the mean high day temperature has varied, the most 12°5 in January, the next in order, 11°5 in February, and 11°1 in March ; and the least 3°9 in August, 4°1 in July, and 4°6 in September. The lowest reading in the 10 years was 55°7 in February, 1882, and the highest, 89°9, in August, 1881.

The numbers at the foot of the columns show the yearly mean of the high day temperature, the lowest, 75°, was in 1882, and the highest, 77°9, in 1887.

The highest monthly mean high day temperatures in each year have been as follows :—

In 1880, in August	....	....	....	....	....	89°0
1881 „ August	....	....	....	....	....	89°9
1882 „ September	....	....	....	....	....	87°2
1883 „ August	....	....	....	....	....	88°2
1884 „ August	....	....	....	....	....	86°0
1885 „ August and September....	....	....	....	....	....	87°1
1886 „ August	....	....	....	....	....	87°9
1887 „ August	....	....	....	....	....	88°5
1888 „ July	....	....	....	....	....	88°5
1889 „ July	....	....	....	....	....	88°4

So that the maximum has been—

Twice in July.  
Seven times in August.  
Twice in September.

TABLE VIII.—Monthly Mean of the daily Maximum Temperature at *Blackheath*.

Months.	Years.											Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.		
January ..	37.6	36.0	41.1	45.3	47.5	40.3	39.7	39.0	40.9	40.4	°	°
February..	47.5	41.9	46.8	47.7	47.5	49.6	37.0	43.6	38.9	41.9	°	°
March ..	54.2	50.9	54.2	44.2	52.1	48.0	44.7	44.2	43.8	47.7	°	°
April ..	55.8	55.4	56.6	57.3	53.7	57.8	52.8	52.7	51.3	51.3	°	°
May ..	63.8	64.6	65.4	63.0	64.7	60.9	60.8	58.2	63.9	66.7	°	°
June ..	67.6	69.1	64.9	69.8	67.2	72.1	66.7	72.2	68.8	72.3	°	°
July ..	72.1	76.0	70.4	69.0	72.9	76.3	72.7	77.8	67.4	70.9	°	°
August ..	71.7	67.6	69.3	72.0	76.5	68.5	70.7	72.9	68.8	70.9	°	°
September.	68.9	63.1	63.2	65.1	68.2	63.1	66.7	61.9	63.1	63.9	°	°
October ..	52.5	51.6	56.8	56.4	55.7	51.2	59.5	51.1	52.9	54.8	°	°
November	47.7	51.6	48.1	48.7	47.2	47.1	48.7	43.9	50.6	49.0	°	°
December .	47.1	43.5	43.8	43.8	45.0	41.8	40.4	40.4	41.5	40.9	°	°
Means ..	57.2	55.9	57.0	56.8	58.2	56.4	55.0	54.8	54.2	56.1	°	°

The extreme monthly mean high-day temperatures in each month are as follows :—

	The lowest was °		The highest was °	
In January	36·0	in 1881	and 47·5	in 1884.
February	37·0	1886	„ 49·6	1885.
March	43·8	1888	„ 54·2	1880, 1882.
April	51·3	1888	„ 57·8	1885.
May	58·2	1887	„ 66·7	1889.
June	64·9	1882	„ 72·3	1889.
July	67·4	1888	„ 77·8	1887.
August	67·6	1881	„ 76·5	1884.
September	61·9	1887	„ 68·9	1880.
October	51·1	1887	„ 59·5	1886.
November	43·9	1887	„ 51·6	1881.
December	40·4	1886, 1887	47·1	1880.

Thus the mean high-day temperature has varied, the most 12°·6 in February, 11°·5 in January, and 10°·4 in March, agreeing very nearly with the changes at Sarona in the same months ; and the least, 6°·5 in April, 6°·7 in December, and 7°·0 in September, not agreeing with Sarona.

The lowest monthly reading in the 10 years was 36° in January, 1881, being 19°·7 lower than the lowest reading at Sarona ; and the highest was 77°·8 in July, 1887, being 12°·1 lower than the highest at Sarona.

The numbers at the foot of the columns show the mean high-day temperature for each year. By comparing them with those at the foot of the columns in corresponding table at Sarona, it will be seen those at Sarona are much higher. The year of least difference, 17°·4, was in 1884, and that of greatest difference, 23°·1, was in 1886. The mean excess of the 10 years was 20°·7.

By comparing the numbers in Tables VII. and VIII. month by month, it will be seen that the readings at Sarona were higher in every month than at Blackheath, and the excess varied, in—

January	from ....	....	12·7 in 1884 to 35·0 in 1881
February	„ ....	....	8·9 „ 1882 „ 30·0 „ 1886
March	„ ....	....	12·2 „ 1880 „ 33·7 „ 1888
April	„ ....	....	15·4 „ 1885 „ 25·3 „ 1887
May	„ ....	....	9·9 „ 1882 „ 22·5 „ 1885
June	„ ....	....	10·7 „ 1885 „ 19·3 „ 1886
July	„ ....	....	8·1 „ 1887 „ 21·1 „ 1888
August	„ ....	....	9·5 „ 1884 „ 22·3 „ 1881
September	„ ...	....	10·5 „ 1886 „ 25·0 „ 1881
October	„ ....	....	24·1 „ 1886 „ 37·1 „ 1887
November	„ ....	....	28·9 „ 1888 „ 33·9 „ 1887
December	„ ....	....	17·7 „ 1880 „ 29·7 „ 1887

By taking the difference between the numbers in the last columns of Tables VII. and VIII., the mean monthly excess of high-day temperature at Sarona over that at Blackheath in—

January	....	....	....	....	was	22 <sup>o</sup> ·1
February	....	....	....	....	„	19·7
March ....	....	....	....	....	„	21·4
April ....	....	....	....	....	„	20·1
May ....	....	....	....	....	„	15·9
June ....	....	....	....	....	„	14·2
July ....	....	....	....	....	„	13·5
August ....	....	....	....	....	„	17·1
September	....	....	....	....	„	22·4
October....	....	....	....	....	„	30·7
November	....	....	....	....	„	26·4
December	....	....	....	....	„	24·4
And the mean yearly daily excess	....	....	....	....	„	20·7

TABLE IX.—Monthly Mean of the nightly Minimum Temperature at *Sarona*.

Month.	Years.										Means of 10 years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	42.9	48.0	43.7	48.7	40.9	46.6	49.3	44.9	44.9	49.0	45.9
February..	45.8	47.6	44.0	45.6	46.2	45.6	48.7	44.0	49.1	47.8	46.4
March ..	46.9	48.1	47.1	49.1	48.3	48.9	49.0	46.6	53.1	52.3	49.0
April ..	52.0	56.9	51.9	50.0	53.4	53.2	51.8	52.9	54.8	51.5	52.8
May ..	57.0	56.8	55.4	55.2	57.0	60.0	56.0	56.3	58.1	60.8	57.3
June ..	63.5	58.9	59.3	63.6	63.7	64.8	63.5	62.7	63.2	64.0	62.7
July ..	67.0	67.1	65.5	67.0	66.0	68.8	65.6	66.1	69.2	69.5	67.2
August ..	69.0	70.3	68.7	69.4	68.9	68.3	69.2	69.1	70.3	70.3	69.4
September	65.2	68.1	66.3	61.0	64.3	67.1	66.3	67.3	67.3	69.7	66.3
October ..	62.6	61.5	60.6	61.8	60.5	63.3	60.6	63.8	67.5	63.0	62.5
November	57.6	55.9	56.0	54.5	52.9	53.9	52.9	57.2	53.1	50.2	51.4
December	49.0	47.4	50.9	46.6	48.6	51.9	48.1	50.9	48.2	48.9	49.0
Means ..	56.5	57.2	55.8	56.1	55.9	57.7	56.7	56.8	58.2	58.1	56.9

The numbers in this table showing the monthly mean of the low night temperatures are all high ; the following shows the extremes in every month in the 10 years. It varied in

January	from	....	40°9 in 1884 to 49°3 in 1886
February	„	....	44°0 „ 1882 & 1887 to 49°1 in 1888
March	„	....	46°6 in 1887 to 53°1 in 1888
April	„	....	50°0 „ 1883 „ 56°9 „ 1881
May	„	....	55°2 „ 1883 „ 60°8 „ 1889
June	„	....	58°9 „ 1881 „ 64°8 „ 1885
July	„	....	65°5 „ 1882 „ 69°5 „ 1889
August	„	....	68°3 „ 1885 „ 70°3 „ 1881, 1888, 1889
September	„	....	61°0 „ 1883 „ 69°7 „ 1889
October	„	....	60°5 „ 1884 „ 67°5 „ 1888
November	„	....	50°2 „ 1889 „ 57°6 „ 1880
December	„	....	46°6 „ 1883 „ 51°9 „ 1885

Thus the low night temperature has varied the least 2° in August, the next in order 4° in July, and the most 8°·7 in September, and the next in order 8°·4 in January. The lowest mean reading in the 10 years was 40°·9, and the highest was 70°·3.

The numbers at the foot of the columns in Table IX. show the yearly mean of the low night temperature, the lowest, 55°·8, was in 1882, and the highest, 58°·2, was in 1888.

The lowest monthly mean low night temperature in each year was as follows :—

In 1880	....	....	....	was	42°9 in January.
1881	....	....	....	„	47°4 „ December.
1882	....	....	....	„	43°7 „ January.
1883	....	....	....	„	45°6 „ February.
1884	....	....	....	„	40°9 „ January.
1885	....	....	....	„	45°6 „ February.
1886	....	....	....	„	48°1 „ December.
1887	....	....	....	„	44°0 „ February.
1888	....	....	....	„	44°9 „ January.
1889	....	....	....	„	47°8 „ February.

Therefore the lowest monthly mean has occurred—

Four times in January.  
Four times in February.  
Twice in December.

TABLE X.—Monthly Mean of the nightly Minimum Temperature at *Blackheath*.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	27·4	27·3	36·1	37·0	38·9	31·3	30·1	30·2	31·6	30·0	32·0
February..	35·6	34·3	37·2	37·6	36·8	38·0	28·8	32·8	29·4	30·8	31·2
March ..	36·3	36·3	38·9	30·6	38·0	32·6	33·1	30·9	31·8	32·3	34·1
April ..	39·1	38·5	41·0	39·5	38·4	38·8	39·1	34·8	35·5	38·3	38·3
May ..	41·9	45·6	46·2	45·7	45·1	41·8	44·2	42·1	42·9	48·0	44·4
June ..	48·3	51·1	49·9	51·2	50·3	50·0	49·0	50·5	49·6	51·9	50·2
July ..	52·1	56·0	53·7	52·8	54·7	54·2	53·8	54·9	50·4	53·3	53·6
August ..	54·4	52·3	53·5	54·4	55·2	50·7	53·8	52·0	50·5	51·3	52·8
September	50·6	50·0	48·3	50·8	52·6	48·2	51·6	46·3	47·9	47·9	50·4
October ..	39·0	40·2	45·3	44·9	42·9	40·4	46·5	37·5	35·9	41·2	41·4
November	36·0	41·8	39·0	37·7	37·2	38·1	37·5	34·9	40·7	37·8	38·1
December	37·0	35·0	36·0	36·0	36·7	32·9	32·0	31·2	33·3	31·1	34·1
Means ..	41·5	42·4	43·8	43·2	43·9	41·4	41·6	39·8	40·0	41·2	42·0

These numbers are a great contrast indeed to those in Table IX. They have varied in each month as follows :—

January	from	....	....	27°·3 in 1881 to 38°·9 in 1884
February	,,	....	....	28°·8 ,, 1886 ,, 38°·0 ,, 1885
March	,,	....	....	30°·6 ,, 1883 ,, 38°·9 ,, 1882
April	,,	....	....	34°·8 ,, 1887 ,, 41°·0 ,, 1882
May	,,	....	....	41°·8 ,, 1885 ,, 48°·0 ,, 1889
June	,,	....	....	48°·3 ,, 1880 ,, 51°·9 ,, 1889
July	,,	....	....	50°·4 ,, 1888 ,, 56°·0 ,, 1881
August	,,	....	....	50°·5 ,, 1888 ,, 55°·2 ,, 1884
September	,,	....	....	46°·3 ,, 1887 ,, 52°·6 ,, 1884
October	,,	....	....	35°·9 ,, 1888 ,, 46°·5 ,, 1886
November	,,	....	....	34°·9 ,, 1887 ,, 41°·8 ,, 1881
December	,,	....	....	31°·1 ,, 1889 ,, 37°·0 ,, 1880

Thus no month has been so uniform in temperature as the corresponding month has been at Sarona. The month of June has varied 3°·6; the next in order was August, 4°·7. The month of greatest change, 11°·6, was in January, and the next in order, 10°·6, was in October. The lowest mean reading in the 10 years was 27°·3, being 13°·6 below the lowest at Sarona; and the highest was 56°·0, being 14°·3 below that at Sarona, viz., 70°·3 in August.

The lowest monthly mean of low night temperature in each year at Blackheath was as follows. In—

1880	....	....	....	....	27°·4 in January.
1881	....	....	....	....	27°·3 ,, January.
1882	....	....	....	....	36°·0 ,, December.
1883	....	....	....	....	30°·6 ,, March.
1884	....	....	....	....	36°·7 ,, December.
1885	....	....	....	....	31°·3 ,, January.
1886	....	....	....	....	28°·8 ,, February.
1887	....	....	....	....	30°·2 ,, January.
1888	....	....	....	....	29°·4 ,, February.
1889	....	....	....	....	30°·0 ,, January.

Therefore the lowest monthly mean of low night temperature has occurred—

Five times in January.  
Twice in February.  
Once in March.  
Twice in December.

The numbers at the foot of the columns in Table X. show the yearly mean of the low night temperature at Blackheath. The lowest was  $39^{\circ}\cdot 8$  in 1887, and the highest was  $43^{\circ}\cdot 9$  in 1884, being  $16^{\circ}\cdot 0$  and  $14^{\circ}\cdot 3$  respectively colder than those at Saronæ.

By taking the difference between the numbers in the last columns of Tables IX. and X., the mean monthly excess of low night temperature at Saronæ over that at Blackheath in—

January	....	....	...	....	....	was	<sup>o</sup> 13·9
February	....	....	....	....	....	„	12·2
March	...	....	...	....	...	„	14·9
April	....	....	....	....	....	„	14·5
May	...	....	...	....	....	„	12·9
June	....	....	....	....	....	„	12·5
July	....	....	....	....	...	„	13·6
August	....	....	....	....	....	„	16·6
September	....	....	....	....	....	„	15·9
October	....	....	....	....	....	„	21·1
November	....	....	....	....	....	„	16·3
December	....	....	....	....	....	„	14·9
And the mean excess for the year	....	....	....	....	....	„	14·9

TABLE XI.—Monthly Mean daily range of Temperature at Savona.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	15·6	23·0	17·4	15·7	19·3	15·7	15·4	18·5	16·8	15·2	17·3
February..	19·7	17·2	11·7	17·2	14·1	19·7	18·3	20·3	17·0	19·4	17·5
March ..	19·5	20·3	21·7	21·1	18·2	21·2	18·7	21·3	24·4	21·5	20·8
April ..	23·2	20·7	20·9	22·8	24·4	20·0	21·2	25·1	19·9	22·6	22·1
May ..	23·9	23·3	19·9	21·5	20·2	23·4	20·5	23·9	20·1	21·4	21·8
June ..	20·3	24·3	20·3	19·5	20·7	18·0	22·5	21·2	19·2	20·4	20·6
July ..	20·3	19·1	18·9	17·4	19·0	16·9	20·4	19·8	19·3	18·9	18·9
August ..	20·0	19·6	17·9	18·8	17·1	18·8	18·7	19·4	18·1	18·0	18·6
September	23·1	20·0	20·9	27·7	19·4	20·0	20·9	19·3	19·8	17·1	20·8
October ..	22·1	21·8	22·7	22·3	21·3	22·3	23·5	24·4	20·6	23·8	22·5
November	22·3	19·1	20·5	19·8	19·9	22·6	20·3	20·6	16·4	20·1	20·2
December	15·8	18·8	18·0	19·1	22·3	18·2	20·2	19·2	15·6	17·7	18·5
Means ..	20·5	20·6	19·2	20·2	19·7	19·7	20·1	21·1	18·9	19·7	20·0

The mean daily range in each month has varied in 10 years as follows :

January	from ....	....	15·2	in 1889	to 23·0	in 1881
February	„ ....	....	11·7	„ 1882	„ 20·3	„ 1887
March	„ ....	....	18·2	„ 1884	„ 24·4	„ 1888
April	„ ....	....	19·9	„ 1888	„ 25·1	„ 1887
May	„ ....	....	19·9	„ 1882	„ 23·9	„ 1880, 1887
June	„ ....	....	18·0	„ 1885	„ 24·3	„ 1881
July	„ ....	....	16·9	„ 1885	„ 20·4	„ 1886
August	„ ....	....	17·1	„ 1884	„ 20·0	„ 1880
September	„ ....	....	17·1	„ 1889	„ 27·7	„ 1883
October	„ ....	....	20·6	„ 1888	„ 24·4	„ 1887
November	„ ....	....	16·4	„ 1888	„ 22·6	„ 1885
December	„ ....	....	15·6	„ 1888	„ 22·3	„ 1884

The smallest range in any month was 11°·7 in February, 1882, and the largest was 27°·7 in September, 1883.

The greatest monthly mean daily range of temperature at Saronia in

1880	....	....	....	was	23·9	in May.
1881	....	....	....	„	24·3	„ June.
1882	....	....	....	„	22·7	„ October.
1883	....	....	....	„	27·7	„ September.
1884	....	....	....	„	24·4	„ April.
1885	....	....	....	„	23·4	„ May.
1886	....	....	....	„	23·5	„ October.
1887	....	....	....	„	25·1	„ April.
1888	....	....	....	„	24·4	„ March.
1889	....	....	....	„	23·8	„ October.

The greatest monthly range of temperature in 10 years, therefore, has occurred—

Once in March.  
 Twice in April.  
 Twice in May.  
 Once in June.  
 Once in September.  
 Three times in October.

TABLE XII.—Monthly Mean daily Range of Temperature at *Blackheath*.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	10·2	8·7	8·0	8·3	8·6	9·0	9·6	8·8	9·4	10·4	9·1
February..	11·9	7·7	9·6	10·1	10·7	11·6	8·2	10·9	9·5	11·1	10·1
March ..	17·9	14·6	15·3	13·6	14·1	15·4	11·6	13·3	12·0	15·4	14·3
April ..	16·7	16·9	15·6	17·8	15·3	19·0	13·7	17·6	15·8	15·9	16·4
May ..	21·9	19·0	19·2	17·3	19·6	19·1	16·6	16·2	21·0	18·7	18·8
June ..	19·3	18·0	15·0	18·6	16·9	22·1	17·7	21·7	19·2	20·4	19·0
July ..	20·0	20·0	16·7	16·2	18·2	22·1	18·9	22·9	17·0	17·6	19·0
August ..	17·3	15·2	15·8	17·6	21·3	17·8	16·9	20·9	18·3	19·6	18·0
September	18·3	13·1	14·9	14·3	15·6	14·9	15·1	15·6	15·2	16·0	14·3
October ..	13·5	11·5	11·5	11·5	12·8	10·8	13·0	13·6	17·0	13·7	12·9
November.	11·7	9·8	9·1	11·0	10·0	9·0	11·2	9·0	9·9	11·2	10·2
December .	10·1	8·5	7·8	7·8	8·3	8·9	8·4	9·2	11·2	9·8	9·0
Means ..	15·7	13·6	13·2	13·7	14·3	15·0	13·4	15·0	14·2	14·9	14·3

The monthly mean daily range of temperature has varied in 10 years

In January	from ....	..	8°0 in 1882 to 10°4 in 1889
February	„ ....	....	7°7 „ 1881 „ 11°9 „ 1880
March	„ ....	..	11°6 „ 1886 „ 17°9 „ 1880
April	„ ..	....	13°7 „ 1886 „ 19°0 „ 1885
May	„ ..	..	16°2 „ 1887 „ 21°9 „ 1880
June	„ ....	....	15°0 „ 1882 „ 22°1 „ 1885
July	„ ....	....	16°2 „ 1883 „ 22°9 „ 1887
August	„ ....	..	15°2 „ 1881 „ 21°3 „ 1884
September	„ ...	..	13°1 „ 1881 „ 18°3 „ 1880
October	„ ...	....	10°8 „ 1885 „ 17°0 „ 1888
November	„ ..	..	9°0 „ 1885 & 1887 to 11°7 in 1880
December	„ ....	....	7°8 „ 1882 & 1883 „ 11°2 „ 1888

The smallest mean daily range of temperature in any month was 7°·7 in February, 1881, and the largest was 22°·9 in July, 1887.

The greatest monthly mean daily range of temperature at Blackheath in—

1880	....	....	....	....	was	21°9 in May.
1881	....	....	....	....	„	20°0 „ July.
1882	....	....	....	....	„	19°2 „ May.
1883	...	....	....	....	„	18°6 „ June.
1884	....	...	....	....	„	21°3 „ August.
1885	....	....	....	....	„	22°1 „ June and July.
1886	....	....	....	....	„	18°9 „ July.
1887	...	...	....	....	„	22°9 „ July.
1888	....	...	...	....	„	21°0 „ May.
1889	....	....	....	....	„	20°4 „ June.

Therefore the greatest monthly mean daily range of temperature has occurred—

Three times in May.

Three times in June.

Four times in July.

Once in August.

By comparing the numbers in Tables XI. and XII., it will be seen that the monthly mean daily ranges of temperature at Sarona in the years 1880, 1882, 1883, and 1886, were all larger than those at Blackheath. The differences, however, were small in the months from May to August. In each of the remaining years—one month, at least, in each year—the range was larger at Blackheath than at Sarona.

The difference between monthly mean of daily ranges at Sarona and Blackheath varied in—

January	from	....	+ 4·8 in 1889 to + 14·3 in 1881
February	„	....	+ 2·1 „ 1882 „ + 10·1 „ 1886
March	„	....	+ 1·6 „ 1880 „ + 12·4 „ 1888
April	„	....	+ 1·0 „ 1885 „ + 9·1 „ 1884
May	„	....	— 0·9 „ 1888 „ + 6·7 „ 1887
June	„	....	— 4·1 „ 1885 „ + 6·3 „ 1881
July	„	....	— 3·1 „ 1887 „ + 2·3 „ 1888
August	„	....	— 4·2 „ 1884 „ + 4·4 „ 1881
September	„	....	+ 1·1 „ 1889 „ + 13·4 „ 1883
October	„	....	+ 3·6 „ 1888 „ + 11·8 „ 1883
November	„	....	+ 6·5 „ 1888 „ + 13·6 „ 1885
December	„	....	+ 4·4 „ 1888 „ + 14·0 „ 1884

The sign + implies greater range at Sarona than at Blackheath, and the sign — that the range at Sarona was smaller than at Blackheath.

By taking the difference between the numbers in the last columns of Tables XI. and XII., the mean difference between the daily ranges of temperature at Sarona and Blackheath in every month is shown, and are as follow :—

The mean range of daily temperature in—

January	is greater than at Blackheath by	8·2
February	„ „ „	7·4
March	„ „ „	6·5
April	„ „ „	5·7
May	„ „ „	3·0
June	„ „ „	1·6
July	is smaller	0·1
August	is greater	0·6
September	„ „ „	6·5
October	„ „ „	9·6
November	„ „ „	10·0
December	„ „ „	9·5

Thus the greatest differences are in the winter months ; the next in order are the spring months, and the least are in the months from May to August.

## NOTES ON HEBREW AND JEWISH INSCRIPTIONS.

By Prof. CLERMONT-GANNEAU.

I.



THE HEBREW INSCRIPTION FROM TELL EL HESY.

"I HAVE just read in the last *Quarterly Statement* (1891, April, p. 158) a note relating to the inscription from Tell el Hesy, for a squeeze of which I asked you some time ago, but have not yet received.

"I have had, on two occasions, to discuss publicly this very curious inscription, at a meeting of our Academy of Inscriptions and Belles Lettres, towards the end of the year 1890, and at the Collège de France, in my lectures upon "Epigraphie et Antiquités Sémitiques."

"Major Conder, M. Sayce, and your anonymous correspondent have, in my opinion, quite missed the true reading of this little inscription. It is impossible to read, as these gentlemen propose, להנוד (Conder), or לסמד (Sayce), or להמד (Anonymous). The true reading is לחשד; the letter *schin* is closely joined to the letter *khet*, but this accidental contact should not be taken into account in its deciphering.

"Four characters of an excellent form are obtained thus, the paleography of which is entirely archaic *Hebrew*; the hook of the tail of the *kaph* is, in this last respect, altogether demonstrative. חשד is a proper name of a man, derived from the root חשד, in the sense "to save, to preserve, to spare" (= post-Biblical Hebrew, חסד); the name should probably be vocalised *Hasoûk* (חש(ו)ך), and the inscription, as a whole, should be translated thus: "belonging to Hasoûk."

"I repeat my request for the squeeze of this very interesting little text.

"I should like to know at the same time if it has been traced on the clay before baking, or cut afterwards in *graffito*."

## II.

## JEWISH INSCRIPTIONS ON OSSUARIES.

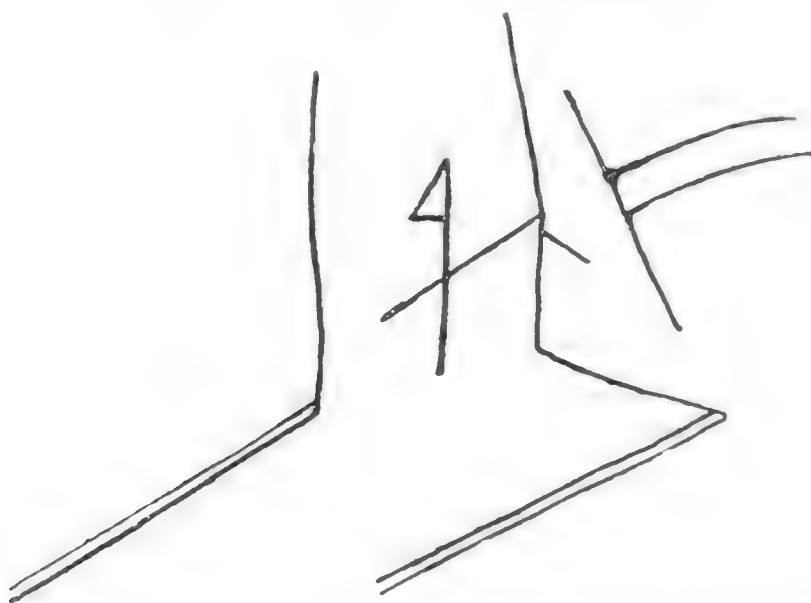
a.

"The examination of the squeeze of the Hebrew inscription which I have made, confirms the opinion I expressed in my preceding note to you. It is unquestionably a Hebrew inscription in square cursive characters, bearing the greatest resemblance to those of the ossuaries from the Mount of Offence.<sup>1</sup> The first letter is certain, it is a *schin*. The second is most probably a *lamed*, the tracing of which has been interrupted by the slipping of the tool of the stone-cutter. The third looks like a *vau*; on the tracing you first sent me it was reduced to a simple vertical stroke, but the squeeze plainly shows its little triangular head, which removes any doubt one might have of it.

"The only doubtful character is the last; I am disposed to consider it as incomplete, and think that a final *mem* must be seen in it; the restoration [שלום] forcibly suggests itself. One may possibly see in the word thus read the substantive *Schalom*, "peace," or perhaps the proper name of a man, *Schalloum*, or, better, the proper name of a woman, *Schalom* = *Salômé*.

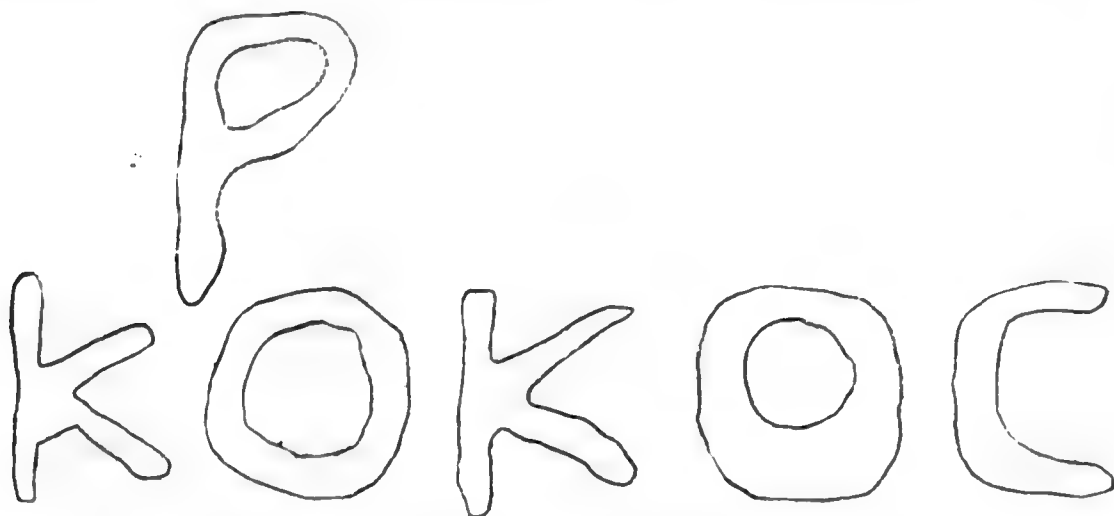
"I am inclined to think the last explanation correct, having already found on the ossuaries from the Mount of Offence, the woman's Hebrew name *Salome* so written. Moreover, another accessory particularly tends to show that the ossuary was destined to receive the remains of a woman rather than those of a man, namely, the triangular form of the lid. Generally this form of lid in Palestinian ossuaries and even in sarcophagi seems rather to point out the funeral monument of a woman.

"Here is the inscription as I read it from the squeeze:—



<sup>1</sup>See my memoir, "Epigraphes Hébraïques et Grecques sur des Ossuaires Juifs inédits," Paris, 1883.

b.



Κρόκος.

“THE stone cutter had at first written **KOKOC**, having omitted the **Ρ**, which he afterward superadded. The masculine proper name *Κρόκος*, of which the etymological meaning is *saffron*, has already been met with in a Greek inscription in Egypt (proscynème at Wad Fawakher, *Corp. Inscript. Græcar.*, III, *Add.* No. 4716 d 44, p. 1197). One of the ossuaries from the Mount of Offence (No. 15 of the memoir before quoted), an ossuary remarkable for its small dimensions, apparently indicating that it was designed to receive the remains of a child, bears the Hebrew name קרקם. I had supposed that this strange name concealed a transcription of a Greek name such as *Κύρικος*, *Κούρικος*, *Κυριακός*, &c. I now think that קרקם is no other than *Krokos*; the transcription is strictly that which may be expected according to the rules of Hebrew transcription of Greek, and, on the other hand, we now have positive proof that the name of *Κρόκος* was really in use in the Greco-Jewish onomastics.

c.

“I was unable to make anything of the tracing you sent me, but the squeeze which I now have before me enables me to arrive at the following reading which I consider as almost certain :—

[Ιω]σήπου πενθεροῦ  
[Δρ]όσου

(*belonging*) to *Joseph*, father(?)-in-law of *Drosos*.

“The inscription is incomplete on the left by reason of a fracture of the monument which cuts off the commencement of the two lines. On the first line the fracture has caused the whole Ι to disappear and part of the ω of the name Ἰωσηπος (genitive case), an exact and well-known transcription of the Hebrew name *Joseph*. I have often met with the letter η under this cursive form in Greek inscriptions on Jewish ossuaries. The υ, in spite of the singular form that it affects three times, is not doubtful; this form is interesting for the history of Greek paleography.

“The word πενθερός indicates in Greek a relationship with parents by

alliance which is variable : generally it is father-in-law, the father of the wife, sometimes also it is the son-in-law, or even the brother-in-law



"The reading of the second name *Δρόσος* is partly conjectural, the Δ and the ρ are disfigured by a fracture, but I believe I have recovered them by a careful examination of the squeeze.

"The man's name, thus obtained by restoration, has good guarantee = *Δρόσος* (Orelli, No. 1260 K). Compare the feminine names *Δρόσιον* and *Δροσίς*. I am inclined to think that *Δρόσος* is meant for *Δροῦσος*, an ordinary transcription of a well-known Roman name *Drusus*; similarly *Δρόσιλλα* (Nicet. Eng., I. 74-353) is for *Δρούσιλλα*, *Drusilla*, a woman's name derived from *Drusus*. (cf. *Δρόσυλα*, on an Umbrian vase, *Raoul-Rochette, lettre à M. Schorn*, 15).

"The names of *Drusus* and *Drusilla*, which were borne by many Romans belonging to the "gens Livia," appear, from the records, to have been in favour among the Jews about the time of Herod Agrippa I. This prince, desiring to flatter the Romans by taking the names of the imperial family, gave that of *Drusilla* to one of his daughters (who afterwards married the procurator of Judea, Felix, and is mentioned in the History of St. Paul, *Acts xxiv*, 24), and that of *Drusus* to one of his sons, who died before attaining the age of manhood. (*Josèphe, Antiq. Jud. xviii*, 5 : 4.)

"Consequently the name of *Drusus* was rather in vogue among the Jews in the first century of our era, which would well accord with the probable date of our ossuaries, and render so much the more probable the reading I propose for the mutilated name, *Δρόσος* = *Δροῦσος* = *Drusus*.

"There is mention in the Talmud (j. *Joma*, IV., 41d., j. *Schabb*, I., 4a, &c.) of a *Rabbi Derosa* or *Derosai* (דרוסא, דרוסה, דרוסא) whose name appears to be the Hebrew transcription of the Greco-Roman name *Δρόσος*. It is known that the use of these foreign names was very common among the ancient rabbis, even those who were most attached to their religious faith."

## MAHANAIM.

By MAJOR CONDER, R.E.

THIS city, one of the most important and interesting in Gilead, has usually been placed far north at *Birket Muhneh*, but, as I have attempted to show in "Heth and Moab," considerable confusion arises from such an identification (chap. vi, pp. 179-181, 1st edition); and I have proposed, therefore, to seek it much further south, somewhere east of Es Salt. After meeting Laban at Mizpeh (probably *Sâf*), Jacob went on his way to Mahanaim (Gen. xxxii, 2). Thence he went to Penuel (v. 30), and afterwards rejoined his family, which had crossed the Jabbok (v. 22), and journeyed to Succoth (Gen. xxxiii, 17). If, then, Succoth be where Dr. Selah Merrill has shown it to be—at Tell Der'ala, north of the Jabbok—Mahanaim should be sought somewhere south of the same, and near Penuel, which I have proposed to place at Neby Osh'a.

In Joshua xiii, 26-30, Mahanaim appears as the capital of a district, and as the east limit of Gad, as contrasted with "the border of Debir," or "limit of the ridge." It was a city of refuge (Josh. xxi, 38); the refuge of Ishbosheth beyond the "gorge" (*Bithron*), and evidently on the highlands (2 Sam. ii, 8, 12, 29). A man could thence be seen running on a plain, by David, when finding refuge there (2 Sam. xviii, 24-27; cf. 2 Sam. xix, 32; Kings ii, 8), and it was at some distance from the wood of Ephraim, which was beyond Jordan (2 Sam. xviii, 6; cf. xvii, 26). It was not in the same region with Ramoth Gilead (*Reimân*), since it was the capital of another province (1 Kings iv, 14; cf. 1 Chron. vi, 80). Finally, in Canticles (vi, 13), we read of the "company of two armies" (*במחלת המהנים*), which has been variously rendered, "dance of Mahanaim" and "dance of a double choir." The word is thus derived from the root *חול* *חול* "to be round;" (*מחולה*), which is a common geographic term for a circular basin or a "circuit," as, for instance, in the case of Abel Meholah (now *'Ain Helweh*).

The name Mahanaim (*מַחֲנֵיִם*) is also geographical, meaning "camp" or "camps" (Gesen); compare the Mahaneh Dan, or "plain of the camp of Dan," near Zorah and Eshtaol. In Arabic it becomes *Mukhnah* (*مخنة*), as in the case of the well-known plain so called near Shechem, and the term would seem to indicate a plain.

On the newly issued map with ancient nomenclature will be found marked, east of Es Salt, the curious depressed plain of circular shape, which is called *El Buki'a*, "the little vale," or, in the vulgar Bedu dialect, *El Beja*. This is the position in which I have supposed Mahanaim to lie. A main road from Salt runs on the west side of the plain northwards, which I followed in 1882, going to Jerâsh. Here will be found marked the ruin *Mukhmah* (*مخمة*), which appears to me to

preserve, somewhat distorted, the name of Mahanaim. The substitution of *m* for *n* is not a very strong objection, since in Syrian speech these two letters are often interchanged. The plain is several miles across, about 2,000 feet above sea level, with hills from 1,000 to 1,500 feet higher round it. The soil is sandy and fertile, the hills are of limestone. There is an important ancient ruin called *El Basha*, about a mile to the south with a fine clear spring. The ruins consist of a tower and round arched vaults, such as occur in many other ancient sites in Gilead, but which are probably of the second to fifth century A.D. Here, I think, we may therefore place the long lost Mahanaim, in a fertile district, near Penuel, south of the Jabbok, and east of the woods whence Salt (*Saltus Hieraticus*) took its name. The runners could be seen at some distance on the level road west of the plain, and the "circle" of Mahanaim would be the circle of the curious basin in which it stands. The northern site should be abandoned as not suiting the geographical requisites of the case.

## ALTAIC LETTER FROM TELL AMARNA.

By MAJOR CONDER, R.E.

AMONG the 300 letters from Tell Amarna (1500-1450 B.C.) the longest of all is written to Amenophis III, by Dusratta, King of Mitani, or the region immediately east of the Euphrates, opposite the Hittite city of Carchemish. The first seven lines are in Assyrian, but, after this introduction, follow 505 lines in his own language. Dusratta wrote other letters in Assyrian which have been translated, and one of which refers to the same persons, Giliash and Manis, who are mentioned in this letter, of which many paragraphs are fairly well preserved, though others are too much broken to be read. The writing is syllabic, in an old cuneiform character, with a few determinatives.

Although the letter has not been translated, the meanings of a few words have been determined by Dr. Sayce and other scholars, and judging from these words, and from the terminations of verbs and nouns, it appears to me to be clear that the whole is written in a Mongol dialect, akin to the Akkadian and Media. I am unable to find any resemblance to the Aryan language of the Vannic tribes, nor has Dr. Sayce pointed out any, save a termination which also occurs in Akkadian. The known words are also not the same that stand for the same sense in Vannic. The vocabulary is very large, and great difficulties will no doubt arise in attempting to render the meaning, without the aid of bilinguals, but many of the words at once recall well-known Media and Akkadian terms, and the same may be said of the commoner terminations.

The Assyrian introduction is much damaged, but the names of Amenophis and of Dusratta have already been recognised, with the

usual invocation of peace and prosperity for the receiver of the tablet  
It appears roughly to have run as follows :—

“To Amenophis the third the [King] of Egypt, from Dusratta King  
[of Mitani]. I am at peace . . . may there be peace to . . . . .  
to thy ladies, to thy nobles, to thy horses, to thy land, and to all  
that is thine exceedingly.”

The words which frequently recur, and of which the meaning is supposed to be known, are as follows :—

*Atta*, “Father.” Akkadian, *Adda*; Medic, *Ate*; Turkish,  $\text{Ata}$ , *ata*.

*Amat*, “grandfather;” *Am-at*, “father’s father.” Compare the Tunguse *ama*, “father.”

*Sen*, “brother.” Compare the Turkic *yin*, a “younger brother,” the *s* being often softened to *y*. In Cantonese we have *hing*, “brother.”

*Dubsar*, “scribe.” Akkadian, *dub*, “tablet,” and *sar*, “master.”

*Tsalam*, “image” (used in Assyrian). Medic, *zal zalmu*, “image.”

*Enippi*, “God.” Medic and Susian, *annap*.

*Ti*, “word.” Turkic, *tia*, “say.”

*Pireta*, “I have sent.” Turkic, *pir*, “to go,” *pirat*, “to despatch.”

*U*, “I” (or *Hu*). Medic, *U*, *Hu*, “I.”

*Nikhari*, “written.” Turkic, *khar*, “to engrave.”

*Talami*, “interpreter.” Turkic, *talamis*, “interpreter.”

*Atinin*, “these.” Turkic, *Atin*, “that,” “this.”

-*na*, plural ending. Mongol, -*na*; Akkadian, -*ene*.

-*s*, termination of the nominative, as in Hittite and Cassite.

*Tissan Tissan*, an adverb. Probably the Turkic *tis*, “quick,” meaning “very quickly.” Dr. Sayce renders it *vehementer*.

*Tip*, “to send.” Medic, *tip*, “send.”

To these words, which all point in one direction, I think we may add others which are equally suggestive, and of which a careful study of the text, as given by Dr. Winckler, shows the occurrence to be in accordance with the proposed interpretation. As instances may be cited—

*Paza*, “moreover.” Turkic, *paza*, “again,” “anew.”

*Khakhani*, “Princes.” Turkic, *Khakhan*, “Prince.”

*Khiarukka*, “contracted.” Turkic, *Khia*, “to bind,” “to wed.”

*Umun*, “Lord.” Akkadian, *Umun*.

The name of the land of Egypt in this letter is written either *Mazri* or *Mizri* in different passages, and the Egyptians are called *Mizrippi* like the Medic, *Muzzariyap*, “Egyptians.” The country whence the letters are despatched appears to be called KUR U, *Minippi*, “Land of the race of the Minni.” This agrees with the position of *Mitani*, which is the name given to his country by Dusratta in the last part of the letter

The Minni or Minyans were well known to the Assyrians as an Asia Minor people, and to the Egyptians as the *Men* or *Menti*, who are described in Egyptian records as dwelling in Assyria, "East of Syria." They were indeed the same race who, in the Hyksos period, had seized on Egypt itself, but had been driven out some two centuries before the date of the letter under consideration. They seem to have been friendly with the Hittites, since in another of the Tell Amarna letters we read of a Hittite prince who fled to the land of Mitani, where he was captured. Dusratta was allied by marriage with Amenophis III, and his translated letters show that an alliance had also existed in the days of his grandfather or of his father, *Suttarna*, whose name suggests that he was a worshipper of *Sut* (or *Set*), the well-known Hittite god. The language of his letter also seems to indicate that he was of the same race with the Hittites and Akkadians. In modern Turkish this name *Mennu* is applied to the Turks of Asia Minor.

The cases of the nouns, and the terminations of the verbs, also serve to show the Mongolic character of the language, as follows :—

Nominative, <sup>1</sup>	-s (as in Cassite, and in some instances in Akkadian).
Genitive, "of,"	-n, Akkadian, -n, Turkish, -n.
Dative, "to,"	-a, " " -ch.
Locative, "at,"	-da, " " -deh.
Accusative	-i, " " -i.
Ablative, "from,"	-dan, " " -den.
Instrumental, "by,"	-la, " " -leh, -li.
Comitative, "with,"	-luan, " " -ailan.
Causative, "for,"	-ikku, Medic, -ikku, -ichun.

The verb would require much study to understand with certainty, but the following seem to be probable :—

*Infinitive*, a prefixed *ni* occurs for the active, as in Akkadian : the passive appears to be *-man*.

*Past tense*, 1st singular, *-ta* (Medic, *-ta*), 3rd singular, *-sa* (Medic, *-s*).

*Subjunctive*, 3rd singular, *-sena* (Medic, *-sne*).

*Imperative*, 3rd singular, *-s* (Medic, *-s*).

The greater part of the syllabary is also the same used later in Medic.

<sup>1</sup> NOTE.—The suffix *ippi*, added to the nouns, seems to form the definite case. It does not appear to be a plural. It is to be compared with what Lenormant calls the "absolute case" in Akkadian, which he compares with *-b*, the Lapp accusative, Samoyed *-p*, Mongol *-ben*. Castren derives it from the pronoun of third person, which is the Akkadian demonstrative *b*. In our letter, however, *-ippi* may also be the termination of the third person of verbs in a certain tense, as in Medic also, and apparently in Akkadian. This does not,

In some passages the number of proper names renders the explanation somewhat more easy, but the number of words used is very great, and many of them are probably new, and not to be found in the small stock of inscriptions in cognate languages already understood. It is clear that the general subject relates to the sending of messengers, and to the interpretation of the letter; and the presents sent are also mentioned, while the last part seems to refer to the marriage of a lady. There are also passages in which, as Dr. Sayce has pointed out, the gods are invoked, including *Ammon* of Egypt, and the Akkadian god *Ea*, with *Tessub*, who is already known to have been a god compared by the Assyrians with Rimmon.

If, as seems to me certain from the considerations above noted, the language is one like Akkadian and Hittite (and indeed several of the words are the same used by the Hittite prince Tarkondara in writing to Amenophis III), it is clear that the syntax of a Turanian language must be strictly followed, the verb always standing at the end of the phrase, and not, as in Aryan speech, often first. None of the known words are Aryan, which it is almost unnecessary to say that they are not Semitic. The language, when fully understood, is likely to be of great value in the study of Hittite; and it appears to me that some of the words, and nearly all the pronouns and terminations, are the same found on the Hittite monuments. This view as to the language being Hittite is, I understand, also held in Germany.

I venture on a tentative translation of some of the passages which are most perfect, though these may be subject to revision. The pious invocations are in the same tone found in passages in the Assyrian letters of Dusratta. Thus early in the letter (line 85-90) he prays to "Ammon and Simigin, to Ea, the King of Life," that they "may hasten very speedily . . . assisting also my speech to be spoken in wisdom."

The letter appears to open with good wishes for the countries of the two kings of Egypt and of Mitani in the native language, and then refers to what had happened in the time of Suttarna.

Dusratta introduces his messengers, Manis and Giliās, in separate paragraphs, and proceeds to say: Amenophis, my Egyptian friend, knows that I live far off. I dwell in the city of *Ikhbin* (or *Idhibin*), which is the city of the god Simigin, whom my father adored as a deity." The next passage (99) seems to mean, "let these whom I have sent (so far?) be received, soon to approach the hall of thy palace." "Giliās . . . I have despatched who will add what does not appear in writing." "The god Simigin I have besought to prosper these things, prospering these . . .

however, show, as some have argued, that there was no real distinction of verb and noun—which would be impossible in so fully developed a language. In English we do not consider that we have no distinction of these parts of speech, because we use *s* as a termination for both, and also for the possessive. This suffix seems to be the Hittite *-Pe*, represented by a long vase as distinguished from the round pot, *-a*.

from the Land of the Minyan race, with the god Ammon, and with Ea the King of Life."

After various compliments a paragraph referring to "tablets" occurs, and apparently Dusratta asks for an answer. Dr. Sayce renders the word *gipanu*, "papyrus" (Akkadian *gi*, "reed," *pa*, "leaf," *nu* "letter," would be the explanation in such case I should suppose, *i.e.*, "a letter on the pith of the reed"). Further on (col. 2, line 60), Dusratta appears to speak of the treasures sent with the messengers, "Invoking the gods to guard the presents with him," "an account being taken." "Gold" is here mentioned, "heaped up before you in abundance, bountifully given, let the gold be received as a gift." He proceeds: "By word of mouth, by writing, by interpretation, . . . replying soon . . . answering my request quickly."

The writer then again (line 75) invokes the gods, Rimmon and Ammon, "may they cause my words to be received, through their wisdom, if I speak not clearly." This subject occupies a good many lines which follow, after which the writer returns to the question of Manis and the letter, which he apparently is to explain.

Another important passage, well preserved, is at the beginning of the back of the tablet. This refers to the "interpretation" or "translation" of the strange tongue. Dusratta then proceeds to speak of something connected with the letter which was to be done by Manis "with Gilias," and again invokes the assistance of the gods: this section ends up with the names of additional envoys, "also besides Manis, the envoy, to my brother, also besides Gilias, Artesupas and Asalinas are messengers. Asalinas, the interpreter of Gilias, my secretary" (this last clause is due to Dr. Sayce) "since he speaks this language together with my brother's language . . . in my embassy to my brother I have sent."

The next paragraph refers to a present of a gold throne (this has been pointed out already by Dr. Sayce) which was sent with the envoy. Dusratta then begins to reach the subject of his letter, which regards the affiancement or marriage of a lady. The expression, *nin es ie*, clearly means "twenty-three months" (line 60), *ie* being the Akkadian *ai*, "month," "moon" (Turkish *آي* in some dialects, *ye*), and the gods are again invoked in this connection, after which the tablet is much injured. When it again becomes more perfect other deities are mentioned, including *Sin*, the Moon-god, and Ammon. Dusratta's own name occurs lower down (line 127) with the distinctive word *umun*, "Lord," preceding it, followed by the name of Amenophis III, of Egypt." In the next section a country called *Pal musri* is noticed. The passage seems to refer generally to difficulty in understanding, and to include the sentence, "my brother had ordered a clearly written reply." Then follows a clause possibly referring to the Hittites (line 16) "*uluû Khati-ma-an danga Esippias dan maan nuukka tilan âpi latakhkha Senippiûallan uru Kharanu sâussena*," perhaps to be rendered, "the chieftain of my people of the land of the Hittites, all

the people whom I conquered with my brother; he rules in the city of Harran."<sup>1</sup> As regards this passage it is to be noted that Egyptian records prove that Amenophis III, at some time during his long reign, had entered the country beyond the Euphrates, where he is said to have hunted lions; and that Harran is usually supposed to have been in the same country, being the abode of Abraham on his way from Babylonia to Syria.

The letter continues to speak of the Land of the Minyans and of Embassies, and apparently of a reply to be sent. It then refers (line 35) to the time of his father and to tablets then written; also (line 53) to Artatas, the grandfather of Dusratta, "before my father," who again is called "my grandfather, my father's father" (as Dr. Sayce has pointed out). It continues (line 67) to refer to Gold in connection with his grandfather and father, and to a contract in the Land of the Minyans "contracted in the presence of the images" (of the gods). This contract seems to refer to a lady (line 90), "the woman my . . . affianced by my brother in the presence of the images," and soon after we read of "my god Sausbe in his presence in the city of Nineveh." The lady's name (line 103) was Tadukhepa, and the passage might perhaps be rendered "Tadukhepa to be taken in marriage, Dusratta of Mitani, ever a friend, desires of his friend Amenophis III., the Egyptian. In the final paragraph there are two references to the "Princes ruling (or living) in the Land of the Minyan race," with a reference to "renewal of friendship and understanding," which no doubt would result from the marriage. Such appears to me to be the general subject of the longest and perhaps most interesting letter in the Tell Amarna collection.

## THE LACHISH INSCRIPTION.

By MAJOR CONDER, R.E.

DR. SAYCE's proposal (*Quarterly Statement*, April 1891, p. 158) to read *Li Semak*, depends mainly on his understanding of what he supposes to be the Samech. This appears to me to be quite untenable, because Phœnician letters consist of joined strokes, and not of strokes independent of each other, as in the case of the signs 𐤌𐤍 which he renders as Samech. I subjoin the various early forms of the letter Samech.

𐤌      𐤍      𐤎      𐤏

<sup>1</sup> The Semitic letters from Tell Amarna speak of the Hittites very often. One mentions a Hittite prince fleeing to the land of Mitani. In others they are noticed as rebels seizing the city of Tunep (Tennib) which belonged to them also in 1360 B.C.

In none of these is there any resemblance to the two letters of the Lachish text, which Dr. Sayce runs into one; whereas, taken separately, they are both well-known forms of the *Heh* and *Nun*. The suggestion of the scholar who does not append his name to his proposal is equally unsatisfactory. He neglects the *Nun* altogether. The *Heh* to which he would give the additional crooked stroke is one of the most constant letters of the Phœnician alphabet.



The early forms are as shown. None of them have more than four strokes. Both the proposed readings must therefore, I think, be rejected, as unsupported by any extant evidence—so far as I am aware. Both scholars seem to me to be puzzled by the last letter but one, which they render *Mim*, though it is closely like a form of *Nun* known from the seals of 8th cent. B.C.

## THE HEBREWS ON THE TELL AMARNA TABLETS.

By MAJOR CONDER, R.E.

IN the excellent translations of some of these invaluable letters by Father A. J. Delattre, S.J., it is noticed that the name of Canaan is spelt with the same sign which is used in the name of Gaza, to represent the Hebrew guttural *y*, not with the value *Kh* or *Gh*, but with the value *'a*. This agrees with what I have already published as to the *'A biri* in these letters being the Hebrews. As the task of translation goes on it becomes apparent that the language and the system of characters used by the chiefs of Phœnicia and Canaan who were subject to the King of Egypt are neither of them purely Assyrian or Babylonian, but represent the Phœnician or Amorite language and writing of the age of Joshua.

## BAAL GAD.

By MAJOR CONDER, R.E.

THIS is a somewhat important place, being the north limit of the Land of Israel according to the Book of Joshua (xi, 17; xiii, 5). Robinson placed it at Baniyas, but its position is defined in the two passages as being "in the valley of Lebanon, under Mount Hermon," and the region inhabited by the Giblites is said to have extended thence to the entrance to Hamath. It seems to me, therefore, more probable that it should be

sought on the north side of Hermon, since Banias could not be described as being in the valley of Lebanon, being in the Jordan Valley.

There is an important spring called 'Ain Jideideh, on the north of Hermon, on the road from Damascus to Beirut, and the plain here is called the Plain of Jideideh. This is close to the south end of the valley of Lebanon, and is at the foot of the north spurs of Hermon. The name comes from the root  $\text{גד}$ , the same from which the Hebrew Gad is taken. It appears to me, therefore, that no position could be more suitable for Baal Gad, and that the name is preserved at a spring, as are the names of several ancient cities in Palestine, such as Chezib, for instance.

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## NOTES ON THE QUARTERLY STATEMENT.

By MAJOR CONDER, R.E.

DR. POST's useful papers on the population sometimes apply rather to the Christian town population of Syria than to the peasantry of Palestine proper, or to the nomadic Arabs. Most of his statements I am able to confirm, as far as my six years' experience goes, but at times his experience is different to my own.

Pp. 110-111. The word *fâs*, pl. *fâs*, was usually applied in my hearing not to a hatchet (an instrument I never remember seeing among the peasantry), but to the common hoe.

For the axe the Turkish word *Balta* I found to be commonly employed.

P. 114. The form *murej* instead of *nurej* for the threshing sledge can hardly be considered a "corruption," because it is the older form, being the Hebrew *moreg*, and this is a proof of the archaic character of the peasant dialect.

P. 117. One custom in connection with the harvest, which may be regarded as superstitious or religious, Dr. Post does not mention, namely, leaving the corner of the field unreaped. Such a custom existed among the Celts in our own islands, and exists among the peasantry in India. In both cases the untilled part was sacred to the genius of the ground.

P. 121. The hyssop is often identified with the *Origanum*, as Dr. Post proposes, but Dr. Chaplin pointed out to me that the plant called *Miriamtyeh* is used to the present day much as hyssop was used, and grows on the walls of ruins as the hyssop is described to have grown in the Bible. This is the *Satureia*, a kind of plant resembling mint, and believed by scholars to be the *ῥύσσανθος*, or hyssop of the Greeks. The *Za'ter*, which is properly the thyme, never, as far as I know, grows on walls, and is therefore hardly to be identified with hyssop. It is very common on the soft chalky hills throughout Palestine.

Many of the plants enumerated show their foreign derivation by their names, and probably came into Syria in post Christian times—such as the orange, potato, and perhaps the mulberry. Others mentioned in my recent paper on Greek words used by the Jews are also foreign, such as the lupine, pea, rice, tomato. Tobacco is in colloquial speech *Dokhân*, “smoke.” The strong tobacco for the water-pipe is called *Tumbak*. The beech is unknown in Palestine itself. The *Derdâr* in the south is not a plane, but a thorny tree of the desert.

P. 126. As regards features, we observed that each village, as a rule, had its characteristic physiognomy, due to inter-marriage of the villagers, as I should suppose. In the north the type resembles that of the Assyrian monuments, in the south it approaches the Egyptian. The pure Arab type beyond Jordan is far more aquiline, and purely Semitic. The Christian population has probably much Greek blood in its veins, and often a good deal of Italian blood also. The peasantry may have Turanian blood of various stocks—from the Hittite down to the Turk. The Arab proper, in type and in speech, approaches nearer to the true Semitic type of Arabia. As regards height, I have met a good many very tall men in Palestine, especially in Philistia and beyond Jordan. The ugly ears of the Moslems—often bent down and always standing out—are accounted for by the great weight of the turban. The *temper* of Christian women is not, so far as I know, superior to that of the Moslem women. The recriminations of Christian women at the Well of Nazareth, for instance, are quite equal to those of their Moslem sisters. The beauties of Nazareth and Bethlehem are believed to have much Italian blood in their veins. Among the Druzes of Carmel I have seen a good many women quite as beautiful as any of the Christians, and others among the Adwân (who do not wear the veil) superior in type of aquiline beauty to any of the Christians. I have also personal experience of the very great muscular strength of many of the men, both among peasants and Arabs. Dr. Post's remark on this point (p. 127) seems rather to apply to the townsfolk. The keenness of eyesight and power of rapid observation, among the lower classes, is also worthy of notice.

I do not think that artists will agree with Dr. Post as to the want of taste among Syrians. The Oriental conception of colour is superior to that of most western peoples, as evinced both in costume and also in their fabrics.

The reasons for the position of towns and villages standing on heights appear to me to be: 1st, for security; 2nd, because the low ground near water is usually feverish. I doubt its being influenced by any particular love of scenery.

P. 134. Although the Syrians are very unpunctual, my experience always was that they were remarkably faithful to agreements, whether sealed or verbal. I have often entrusted muleteers with large sums of money, and never once lost any so entrusted. The sanctity of a trust is one of the strongest sentiments of the peasantry.

P. 137. The remarks as to the virtue of married women do not agree with what I have heard from other residents. Many clandestine meetings are arranged, in remote fields or unfrequented spots, and the lepers are often the means of conveying such messages. The poisoning common among women in Damascus is said to be mainly due to such irregularities. The morality of the herdsmen is also said to be notoriously bad.

The common word *Yallah*, used in all cases when "haste" is desired has, I believe, nothing to do with the name of God, or the invocation *Ya-allah*, "O God," though this is the common explanation. It is originally a Turkish word from the root *yel*, "to hasten," and is probably adopted from the Turks, who are the persons usually most accustomed to "hurry" their Semitic subjects.

P. 145. The assertion that "religion is universal" is not my experience. The Arabs have little religion, beyond a belief in the presence of their ancestral spirits, and of demons in general. They very rarely are found to pray. The peasantry also are very ignorant of the tenets of Islam, and their beliefs belong to the old superstitions of earlier days. Of these superstitions Dr. Post has as yet told us nothing.

P. 187. I must apologise for supposing Herr Schumacher's tomb at Shefa 'Amr to be the same I explored. The similarity is remarkable.

P. 189. As regards the derivation of *Millo*, we may with advantage refer to the derivation given by Gesenius, who does regard the *mim* as servile. He derives it from the common Hebrew and Arabic root "to fill," מִלֵּא, and renders it "mound," or "rampart."

## THE GUTTER NOT NEAR THE FULLER'S FIELD.

By REV. W. F. BIRCH.

IN the astounding identification of "the conduit of the upper pool which is in the highway of the fuller's field" (2 Kings, xviii, 17), with the top of the Ophel shaft (*i.e.*, the gutter) Mr. St. Clair finds *good* (!) evidence (p. 190) that "the shaft was *outside* the wall." As this would ruin my gutter, let me apply a little healthy criticism to his paper.

He says, "The upper pool is believed to be the Virgin's Fountain." Commonly, the worse the error the more it is believed; yet he omits to add by whom or on what evidence such a thing is believed. He and I agree that the Virgin's Fountain represents Gihon, but that Gihon was identical with the upper pool is (so far as I know) only a conjecture of Mr. St. Clair's, improbable for at least two reasons. (A) Names of places are not interchanged in the Bible without a note of explanation; and

(B) the remains of the old conduit (*Quarterly Statement*, 1872, 48 ; 1884, 71) in the rock east of the Damascus gate (where I should place Golgotha), which conduit must have carried water to or from some pool, imply that an old pool existed at a *higher* level than Gihon. Such a pool towards the northern part of Jerusalem would more suitably be named "the upper pool." Josephus also speaks of *the fuller's monument* east of the Damascus gate, quite counterbalancing Eusebius' quotation from Hegisippus about the *fuller's* club. The commonly accepted site for the upper pool, west of the Jaffa gate, is also far more suitable than Gihon.

To strengthen his case, Mr. St. Clair observes that "The place spoken of is not really stated to be *in* the highway of the fuller's field ; for in the Hebrew text the word *in* is not found," and so he renders the words as at "the end of the channel of the upper pool, the stairway of the fuller's field." Here, surely, Mr. St. Clair trusts to his memory instead of *verifying* his reference, or else he goes to the Greek version for his Hebrew, since Is. vii, 3, gives לְנֶחֱמָה before *M'sillah*, while Is. xxxvi, 2, and 2 Kings xviii, 17, both prefix בְּ.

Further, one might ask why it should be probable that Hezekiah lived in David's former house rather than in Solomon's palace ; and why the Hebrew word that suggests (p. 189) that Isaiah went outside the city to meet Ahaz should not again suggest that Eliakim did the same to meet Rab-shakeh.

It is needless, however, to press even one of these objections until someone can devise answers to the fatal questions asked in *Quarterly Statement*, 1889, 207, where I pointed out that the gutter and the Siloam tunnel both refuted Mr. St. Clair's theory. *If* the entrance to the Ophel shaft had been *outside* the wall of the city, *i.e.*, if the city wall did not reach as far south as that entrance—

1. Why do we read in 2 Chron. xxxiii, 14, of "a wall without the city of David on the *west* side of Gihon, in the valley" ?
2. Why should Hezekiah stop "the upper spring of the waters of Gihon and bring them by a subterraneous course" (1890, 210) . . . to Siloam, where the enemy could draw the water just as easily, not to mention his going down by "the stairway" or Ophel passage (if outside the city wall) ?
3. What possible object could there be in making this rock-cut passage ? Why grope in the dark when you can walk in the light ?

It is pleasing to see (p. 190) that to suit the son of Amoz, Mr. St. Clair no longer objects to the Ophel wall extending "a little more southward than the wall found by Warren, though he objected to its extension (1890, 48) to suit the son of Zeruiah. Might it not be well at once to forgive the latter, and concede as many "little mores" as will reach to the Ophel shaft ? This single concession would remove the greatest blot from his theory. When he leaves the entrance *outside* the wall merely to

spite Joab and Araunah, Mr. St. Clair overlooks that the sole gain to any Jew or Jebusite using the passage would be that, while he was in it, he would not on a wet day miss his umbrella. In every other respect, to trip along the hill would be more enjoyable than to tramp through the gloomy dangerous passage.

Mr. St. Clair, nevertheless, is a good step ahead of my other opponents on the question of the age of the shaft. They with one voice attribute it to Hezekiah; he regards it as already existing in the time of Ahaz; but *why*, and *when*, and *by whom*, it was made, he prudently passes over in silence, though since 1878 only one answer has seemed to me possible.

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# THE PALESTINE EXPLORATION FUND.

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## NOTES AND NEWS.

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At the annual meeting of the General Committee held at the Office of the Fund on July 21st, the following gentlemen were unanimously elected members of the General Committee, namely, Lieut.-Col. Goldsmid, Joseph Sebag-Montefiore, Esq., Isidore Spielman, Esq., C.E., John Dickson, Esq., Rev. R. Appleton, W. M. Flinders Petrie, Esq., G. F. Watts, Esq., F. D. Mocatta, Esq.

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More than one speaker at the meeting referred to the importance of the work of the Fund being made more widely known in public schools and other educational establishments, and to the desirability of arranging for periodical lectures, in order to draw attention to the valuable results which have been obtained. The latter suggestion is engaging the attention of the Executive Committee, and it is greatly to be hoped that friends throughout the country who may be connected in any way with schools and colleges will endeavour to introduce regular instruction with respect to the work of the Fund and its results.

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Herr Schick has sent an interesting report of his observations during the quarter, including an account of the many changes which have taken place in modern Jerusalem during the past few years. His further report on excavations at the pool north of the Damascus gate, near the tombs of the kings, will be published in January.

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Mr. Bliss's report of his excavations at Tell-el-Hesi will be found in the present number. The work will be renewed there in the course of the present month. *Contributions are urgently needed towards the expense.* Mr. Bliss also furnishes an interesting letter on "Excavating from its picturesque side."

The museum of the Fund, at 24, Hanover Square, is now open to subscribers between the hours of 10 a.m. and 5 p.m., except on Saturdays, when it closes at 2 p.m.

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Mr. G. R. Lees writes that the tombs mentioned at page 89 of the *Quarterly Statement* for April last as being "350 yards north of Damascus Gate," are situated "850 yards north of the so-called tombs of the kings." Mr. Schick has noted in his report that the tombs are numbered 29 on the plan in the Jerusalem volume of the *Memoirs*, page 343. The squeezes from ossuaries reported on at page 241 of the July number were those sent home by Mr. Lees.

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The Committee will be glad to receive donations of Books to the Library of the Fund, which already contains many works of great value relating to Palestine and the Holy Land.

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It may be well to mention that plans and photographs alluded to in the reports from Jerusalem and elsewhere cannot all be published, but all are preserved in the offices of the Fund, where they may be seen by subscribers.

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The first volume of the "Survey of Eastern Palestine," by Major Conder, has been issued to subscribers. It is accompanied by a map of the portion of country surveyed, special plans, and upwards of 350 drawings of ruins, tombs, dolmens, stone circles, inscriptions, &c. The edition is limited to 500. The first 250 subscribers pay seven guineas for the three volumes; subscribers to the "Survey of Western Palestine" are privileged to have the volumes for this sum. The price will be raised, after 250 names are received, to twelve guineas. The Committee *are pledged never to let any copies be subscribed for under the sum of seven guineas*. Mr. A. P. Watt, 2, Paternoster Square, is the Sole Agent. The attention of intending subscribers is directed to the announcement after Maps and before Contents of this number.

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Mr. H. Chichester Hart's "Fauna and Flora of Sinai, Petra, and the Wâdy 'Arabah" has been completed and sent out to subscribers.

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The Rev. Prof. Theodore F. Wright, Ph.D., of Cambridge, Mass., U.S., has been appointed by the Executive Committee, Lecturer and Honorary General Secretary for the Fund in the United States.

The following gentlemen have kindly consented to act as Honorary Local Secretaries :

Rev. F. C. Norton, Ditchling Vicarage, Sussex.

Rev. Camden M. Cobern, Ph.D., 309, S. Warren Avenue, Sagnion Michigan, U.S.A.

The books now contained in the Society's publications comprise an amount of information on Palestine, and on the researches conducted in the country, which can be found in no other publications. It must never be forgotten that no single traveller, however well equipped by previous knowledge, can compete with a scientific body of explorers, instructed in the periods required, and provided with all the instruments necessary for carrying out their work. The books are the following (*the whole set (1 to 15) can be obtained by subscribers to the Fund by application to the Head Office only (24, Hanover Square, W.), for £3 0s. 0d., carriage paid to any part in the United Kingdom only*) :—

By Major Conder, R.E.—

- (1) "Tent Work in Palestine."—A popular account of the Survey of Western Palestine, freely illustrated by drawings made by the author himself. This is not a dry record of the sepulchres, or a descriptive catalogue of ruins, springs, and valleys, but a continuous narrative full of observations upon the manners and customs of the people, the Biblical associations of the sites, the Holy City and its memories, and is based upon a six years' experience in the country itself. No other modern traveller has enjoyed the same advantages as Major Conder, or has used his opportunities to better purpose.
- (2) "Heh and Moab."—Under this title Major Conder provides a narrative, as bright and as full of interest as "Tent Work," of the expedition for the *Survey of Eastern Palestine*. How the party began by a flying visit to North Syria, in order to discover the Holy City—Kadesh—of the children of Heh; how they fared across the Jordan, and what discoveries they made there, will be found in this volume.
- (3) Major Conder's "Syrian Stone Lore."—This volume, the least known of Major Conder's works, is, perhaps, the most valuable. It attempts a task never before approached—the reconstruction of Palestine from its monuments. It shows what we should know of Syria if there were no Bible, and it illustrates the Bible from the monuments.
- (4) Major Conder's "Altaic Inscriptions."—This book is an attempt to read the Hittite Inscriptions. The author has seen no reason to change his views since the publication of the work.
- (5) Professor Hull's "Mount Seir."—This is a popular account of the Geological Expedition conducted by Professor Hull for the Committee of the Palestine Fund. The part which deals with the Valley of Arabah will be found entirely new and interesting.

(6) Herr Schumacher's "Across the Jordan."

(7) Herr Schumacher's "Jaulân."—These two books must be taken in continuation of Major Conder's works issued as instalments of the "Survey of Eastern Palestine." They are full of drawings, sketches, and plans, and contain many valuable remarks upon manners and customs.

(8) "The Memoirs of Twenty-one Years' Work."—This work is a popular account of the researches conducted by the Society during the past twenty-one years of its existence. It will be found not only valuable in itself as an interesting work, but also as a book of reference, and especially useful in order to show what has been doing, and is still doing, by this Society.

(9) Herr Schumacher's "Kh. Fahil." The ancient Pella, the first retreat of the Christians; with map and illustrations.

(10) Names and Places in the Old and New Testament and Apocrypha, with their modern identifications, with reference to Joséphus, the Memoirs, and *Quarterly Statements*.

(11) Besant and Palmer's "History of Jerusalem."—The "History of Jerusalem," which was originally published in 1871, and has long been completely out of print, covers a period and is compiled from materials not included in any other work, though some of the contents have been plundered by later works on the same subject. It begins with the siege by Titus and continues to the fourteenth century, including the Early Christian period, the Moslem invasion, the Mediæval pilgrims, the Mohammedan pilgrims, the Crusades, the Latin Kingdom, the victorious career of Saladin, the Crusade of Children, and many other little-known episodes in the history of the city and the country.

(12) Northern 'Ajlân "Within the Decapolis," by Herr Schumacher.

By Henry A. Harper—

(13) "The Bible and Modern Discoveries."—This work, written by a Member of the Executive Committee of the Palestine Exploration Fund, is an endeavour to present in a simple and popular, but yet a connected form, the Biblical results of 22 years' work of the Palestine Exploration Fund. The writer has also availed himself of the discoveries made by the American Expeditions and the Egyptian Exploration Fund, as well as discoveries of interest made by independent travellers.

The Bible story, from the call of Abraham to the Captivity, is taken, and details given of the light thrown by modern research on the sacred annals. Eastern customs and modes of thought are explained whenever the writer thought that they illustrated the text. This plain and simple method has never before been adopted in dealing with modern discovery.

To the Clergy and Sunday School Teachers, as well as to all those who love the Bible, the writer hopes this work will prove useful. He is personally acquainted with the land; nearly all the places spoken of he has visited, and most of them he has moreover sketched or painted. It should be noted that the book is admirably adapted for the School or Village Library.

By Guy le Strange—

- (14) "Palestine under the Moslems."—For a long time it had been desired by the Committee to present to the world some of the great hoards of information about Palestine which lie buried in the Arabic texts of the Moslem geographers and travellers of the Middle Ages. Some few of the works, or parts of the works, have been already translated into Latin, French, and German. Hardly anything has been done with them in English, and no attempt has ever been made to systematise, compare, and annotate them.

This has now been done for the Society by Mr. Guy le Strange. The work is divided into chapters on Syria, Palestine, Jerusalem, and Damascus, the provincial capitals and chief towns, and the legends related by the writers consulted. These writers begin with the ninth century and continue until the fifteenth. The volume contains maps and illustrations required for the elucidation of the text.

The Committee have great confidence that this work—so novel, so useful to students of mediæval history, and to all those interested in the continuous story of the Holy Land—will meet with the success which its learned author deserves.

By W. M. Flinders Petrie—

- (15) "Lachish" (one of the five strongholds of the Amorites).—An account of the excavations conducted by Mr. Petrie in the spring of 1890, with view of Tell, plans and sections, and upwards of 270 drawings of the objects found.

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By Trelawney Saunders—

- (16) "An Introduction to the Survey of Western Palestine, describing its Waterways, Plains, and Highlands, with special reference to the Water Basin—(Map. No. 10)."
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The new map of Palestine, so long in hand, is now ready. It embraces both sides of the Jordan, and extends from Baalbek in the north to Kadesh Barnea in the south. All the modern names are in black; over these are printed in red the Old Testament and Apocrypha names. The New Testament, Josephus, and Talmudic names are in blue, and the tribal possessions are tinted in colours, giving clearly all the identifications up to date. It is the most comprehensive map that has been published, and will be invaluable to universities, colleges, schools, &c.

It is published in 21 sheets, with paper cover; price to subscribers to the Fund, 24s., to the public, £2. It can be had mounted on cloth, rollers, and varnished for hanging. The size is 8 feet by 6 feet. The cost of mounting will be extra (*see Maps*).

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Branch Associations of the Bible Society, all Sunday School Unions within the Sunday School Institute, the Sunday School Union, and the Wesleyan Sunday School Institute, will please observe that by a special Resolution of the Committee they will henceforth be treated as subscribers and be allowed to purchase the books and maps (by application only to the Secretary) at reduced price.

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The income of the Society, from June 18th to September 18th was—from annual subscriptions and donations, including Local Societies, £158 5s. 5d.; from all sources, £563 1s. 5d. The expenditure during the same period was £737 3s. 2d. On September 22nd the balance in the Bank was £345 13s. 4d.

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Subscribers are begged to note that the following can be had by application to the office, at 1s. each:—

1. Index to the *Quarterly Statement*, 1869–1880.
  2. Cases for Herr Schumacher's "Jaulân."
  3. Cases for the *Quarterly Statement*, in green or chocolate.
  4. Cases for "Abila," "Pella," and "'Ajlûn" in one volume.
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Early numbers of the *Quarterly Statement* are very rare. In order to make up complete sets, the Committee will be very glad to receive any of the following numbers:—

No. II, 1869; No. VII, 1870; No. III, 1871; January and April, 1872; January, 1883, and January, 1886.

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It having again been reported to the Committee that certain book hawkers are representing themselves as agents of the Society, the Committee have to caution subscribers and the public that they have no book hawkers in their employ, and that none of their works are sold by itinerant agents.

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While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee wish it to be distinctly understood that by publishing them in the *Quarterly Statement* they neither sanction nor adopt them.

Subscribers who do not receive the *Quarterly Statement* regularly are asked to send a note to the Secretary. Great care is taken to forward each number to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

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The only authorised lecturers for the Society are—

- (1) The Rev. Thomas Harrison, F.R.G.S., Member of the Society of Biblical Archæology. Address: Rev. Thomas Harrison, Hillside, Benenden, Staplehurst, Kent. His subjects are as follows:—

- (1) *Research and Discovery in the Holy Land.*
- (2) *In the Track of the Israelites from Egypt to Canaan.*
- (3) *Bible Scenes in the Light of Modern Science.*
- (4) *Eastern Palestine.*
- (5) *The Dead Sea and the Cities of the Plain.*

- (2) The Rev. Charles Chidlow, M.A., Caio Vicarage, Llandilo:—

*Recent Discoveries in Bible Lands.*

- (3) Professor Theodore F. Wright, Ph.D., Cambridge, Mass., Honorary General Secretary of the Palestine Exploration Fund for the United States. His subjects are as follows:—

- (1) *The Building of Jerusalem.*
- (2) *The Overthrow of Jerusalem.*
- (3) *The Progress of the Palestine Exploration.*

Application for Lectures may be either addressed to the Secretary, 24, Hanover Square, W., or sent to the address of the Lecturers.

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It has been asked why Mr. St. Clair's name has been omitted from the list of lecturers. The reason is that during the last season Mr. St. Clair has been lecturing on his own responsibility. His relations with the Committee are, and always have been, of a cordial character, and the Committee desire to express their sympathy with him in his efforts to awaken and sustain interest in "Eastern Exploration."

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## ANNUAL MEETING.

THE Annual Meeting of the General Committee of this Society took place at the Office, 24, Hanover Square, W., on July 21st. James Glaisher, Esq., F.R.S., occupied the Chair. Among those present were Major-General Sir F. J. Goldsmid, Surgeon-General Hutchinson, M.D., the Revs. C. D. Ginsburg, D.D., W. J. Stracey, W. Henry Rogers, D.D., and A. Löwy, J. D. Crace, Esq., H. C. Kay, Esq., Wm. Simpson, Esq., B. Woodd Smith, Esq., Dr. Chaplin, &c.

The Chairman mentioned that he had received letters regretting inability to attend from Viscount Sidmouth, J. R. Barlow, Esq., Sir William Muir, D. MacDonald, Esq., Rev. Joseph Angus, Henry S. Perry, Esq., Rev. W. F. Birch, Jas. Melrose, Esq., Major Conder, R.E., &c.

The Annual Report of the Executive Committee for the past year was then read.

## GENTLEMEN,

Your Executive Committee, elected at the last General Meeting on July 1st, 1890, beg now, on resigning their office, to render an account of their administration during their term of office for the past year.

They have held twenty-one meetings since the last Annual Report was issued.

They have to deplore the loss by death of the late Archbishop of York, the President of the Society for twenty-four years, of the late Dean of Wells, and of the Rev. Henry Geary, who was for more than twenty years one of the Lecturers for the Fund.

They have great satisfaction in announcing the acceptance by His Grace the Archbishop of Canterbury of the Presidency of the Fund.

The main work of the year has been the excavations at Tell-el-Hesi. Some delay occurred in resuming the work. Mr. Flinders Petrie's old love for Egypt was so strong that your Committee had to look afield for a fresh explorer. It was no easy matter to find one suitable, for, as you well know, so many qualifications combined in one man are necessary.

Mr. Bliss, the son of the President of the American College at Beirut, being highly recommended by the Rev. Dr. Post for the position, was appointed, and proceeded to Egypt, where he underwent a course of instructions with Mr. Petrie in conducting excavations.

In February he arrived at Jaffa, and at once began arrangements for starting work, his several letters reporting progress will be found in the *Quarterly Statement*.

His detailed report of the season's operations has just come to hand, and appears in the present number.

Herr Schick continues to report on all newly discovered objects in or near Jerusalem. His endeavours to find the continuation of the rock-cut channel south of the Virgin's Fountain were at last rewarded by success, though not before sinking several shafts over 30 feet in depth. On striking the channel, which is partly a rock-cut tunnel, he followed it for over 200 feet. What this channel or drain belongs to, or where it comes from or leads to, has not yet been decided. Unfortunately, the work was put a stop to by order of the Governor, owing, it is thought, to the lamentable removal of the Siloam inscription, which has roused the suspicions of the Turkish authorities.

Everyone interested in the archæology of Palestine will have learned with regret that this famous inscription was cut out of the rock tunnel and carried away some time during last year. It was broken in removal and the fragments sold to a person in Jerusalem. On receiving this intelligence your Executive Committee immediately forwarded to His Excellency Hamdi Bey a resolution expressing their regret and their hope that steps would be taken to secure the fragments. A few weeks later Mr. Kayat, Acting British Consul at Jerusalem, reported that through his endeavours the inscription had been recovered and handed over to the Turkish authorities for transmission to Constantinople.

About the time of the removal of this inscription another "Siloam inscription" was produced, and copies of it sent to several persons. There is one in this office. It is a clumsy forgery in seven lines of Phœnician characters.

Among the more important discoveries of the year are:—

An elaborate rock-cut tomb, and an ancient bath and cistern near Bethany.

Some fine mosaic work in three colours at the so-called "House of Caiaphas."

Another rock-hewn chapel with a Greek inscription at Silwân.

The springing of an arch in "Solomon's Stables" by Mr. Lees. The lower masonry and the part of the arch left are similar to Robinson's Arch and the fragment of an arch near the south-east corner. A paper on this subject by Mr. Wrightson, C.E., a report with plans by Herr Schick, and a photograph of the arch by Mr. Lees, have been published in the *Quarterly Statement*.

Herr Schick and Mr. Lees sent some squeezes and tracings of Hebrew inscriptions and ornamentation found on some ossuaries that were deposited in rock-hewn tombs lately opened up north of the city, on the west side of the Damascus road. These were forwarded to Professor Clermont-Ganneau, who has contributed valuable notes respecting them, which will be found in the current number of the *Quarterly Statement*.

Herr Schumacher, acting on instructions from the Committee, proceeded to Kana, a village east of Tyre, and photographed (we believe for the first time) and examined the sculptured figures mentioned by Guérin and Renan. No inscriptions were found. Major Conder believes the figures to be of the Roman or Greek period.

Your Chairman has continued his valuable papers on the "Comparison of the Atmospheric Pressure and Temperature in Palestine and in England in the Ten Years ending 1889." These papers are teeming with information on the climate of Palestine.

An important paper on the Maronites by Mr. F. J. Bliss was received early in the year. The Committee hope to publish this early in the coming year.

The Rev. Dr. Post has contributed an account of his trip to Palmyra, and his second valuable essay on the "Sects and Nationalities of Palestine."

Dr. Chaplin reported the discovery, at Samaria, of a Hebrew weight, having an inscription of two lines, in ancient Hebrew characters, which, translated by Professor Sayce, reads: "Quarter of a quarter of a Netzeg." It is believed to belong to the 8th century B.C.

Professor Hayter Lewis obtained, through the kindness of Miss Amy G. Smith, a squeeze of an inscribed Assyrian tablet, which was found many years ago, when the Sisters of Sion were making excavations near the Via Dolorosa. Mr. E. Wallis Budge reports that it is a fragment of an inscription of Sargon (705-721 B.C.), and came from that monarch's palace at Khorsabad.

The premises in Adam Street being now too small for the purposes of the Fund, the commodious rooms in which we are met have been taken.

Your Executive Committee are pleased to report that the collection of objects of interest brought home by officers of the Fund is now entirely in their own hands, and is being arranged for exhibition at the Office of the Fund.

The Rev. Greville J. Chester has rendered valuable assistance in arranging these objects, and Mr. Flinders Petrie has classified and dated the pottery, &c., found during his excavations at Lachish.

Your Treasurer, Mr. Walter Morrison, has presented to the Fund for Exhibition in the Museum room, six beautiful water-colour paintings by Mr. William Simpson.

1. Bahr-el-Kebir, or the Great Sea (underneath the Haram area).
2. The Well of the Steps.
3. Column found in driving a Gallery.
4. Scarp'd Rock in Gallery.
5. Fallen Voussoirs of Robinson's Arch.
6. South-east Corner of the Haram Wall.

These paintings are quite unique, owing to most of the places having been filled at the conclusion of Sir Charles Warren's excavations. The best thanks of the Committee are due to Mr. Morrison for his valuable gift.

The Executive Committee have pleasure in reporting that since the last General Meeting 207 new subscribers have been added to the list of annual subscribers.

#### PUBLICATIONS.

The new publications of the year have been—

1. A new, cheap and revised edition of "The Bible and Modern Discoveries," by Henry A. Harper. This edition is very popular, and has met with a steady sale.

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2. Mr. Flinders Petrie's account of his excavations at Tell-el-Hesi was published in January. It is full of detailed information, with many drawings of

the objects found, which are tabulated according to the period they belong to. In the museum room will be found a carefully-classified set of fragments of pottery from Lachish, comprising Phœnician, Amorite, Jewish, and Greek forms, which will be of great value to students of the subject. Corresponding sets have been left by Mr. Petrie at Jerusalem, Jaffa, and Beirât for the instruction of travellers.

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3. "The Fauna and Flora of the Wâdy 'Arabah and Sinai" has been sent out to all subscribers to the first edition in order of application.

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"The Archæological Mission of Professor Clermont-Ganneau." Proofs of the illustrations of this work have been sent to M. Ganneau, who is engaged in arranging them and preparing the letter-press.

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The raised contour map is in progress. Casts of it in three sections have been made, and Mr. Armstrong, when his other duties permit, is closely engaged in working it up for reproduction. It is intended to publish it in plaster of Paris and papier maché. The physical features of the country and Biblical towns will be shown as far as the scale will permit. Fuller information will be given in the *Quarterly Statement*, previous to publication. This very remarkable production of Mr. Armstrong's skill and industry will be of the greatest value for use in higher schools and to students generally.

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Amongst the reports and papers which have been published in the *Quarterly Statements* since the last General Meeting of Committee are the following:—

By Baurath C. Schick—

"The New Road North and East of the City Wall;" "Discoveries at the House of Caiaphas;" "Another Rock-cut Chapel at Silwân;" "Christian Tombs in Jerusalem;" "Excavations on Mount Olivet, at the Second Aqueduct, at the Golden Gate, and at Rujm-el-Kahakir."

By Mr. Flinders Petrie—

"Journals"; "Explorations in Palestine"; &c.

By Mr. F. J. Bliss—

"Letters on the Progress of the Excavations at Lachish."

By the Rev. J. E. Hanauer—

"Proverbs and sayings among the Spanish Jews;" "Notes on Palmyrene Inscriptions;" "A Subterranean Passage in Solomon's Stables;" "Cuttings in the Rock in the Haram Area."

By James Glaisher, F.R.S.—

“Comparison of the Atmospheric Pressure and Temperatures in Palestine and in England in the ten years ending 1889, from Observations taken at Sarona, near Jaffa.”

By the Rev. George E. Post, M.D.—

“Narrative of a Trip to Palmyra;” “Land Tenure, Agriculture, etc., in Palestine.”

By the Right Rev. Lord Bishop of Salisbury—

“Note on an Inscription from the Church of St. Stephen’s.”

By Dr. Chaplin—

“An ancient Hebrew Weight from Samaria;” “A Stone Mask from er Râm” (the Hebrew weight and stone mask are to be seen in the Museum); “Gihon.”

By T. Wrightson, M.I.C.E.—

“On Relation of certain Arch Springings found within the Area of the Temple of Jerusalem.”

By Dr. Selah Merrill—

“On the Pits in the Shittim Plain;” “Castle at Khan Minieh;” “Visits to Umm Shita;” “The Natural Bridge at Pella;” and “Inhabitants of Bashan.”

By Major Conder, R.E., LL.D., D.C.L., M.R.A.S.—

“The Sculptured Figures near Kana”; “The Native Name of Palmyra”; “The Moubite Stone”; “The Battle of Kadesh”; “The Conquests of Rameses in Galilee”; “Jews and Gentiles in Palestine”; “Monumental Notices of Hebrew Victories”; “On the Chronology of Pottery”; “On the Hebrew Weights”; “Lachish Inscription”; “Quotations of Psalms”; “On the Khabiri or Abiri”; “The Sculptured Tomb at Shefa ’Amr”; “The Early Akkadians in Lebanon”; “The Hittite Prince’s Letter”; “On the Altar from Tell Amarna”; “The Hebrews on the Tell Amarna Tablets”; “On Baalgad”; “Mahanaim.”

By Professor Hayter Lewis—

“An Assyrian Tablet from Jerusalem”; “Ruins of Church on the Skull Hill, Jerusalem.”

By Professor R. W. West, M.A.—

“Barometrical Determination of Heights in Lebanon and Anti-Lebanon.”

By William Simpson, M.R.A.S.—

“Entrance to the Holy Sepulchre”

By Major Watson, R.E., C.M.G.—

“The Holy Sepulchre.”

By Rev. W. F. Birch—

“The ‘Gutter’”: “Gihon.”

By George St. Clair, F.G.S.—

“Millo”; “The Fuller’s Field.”

By Surgeon-General Hutchinson, M.D.—

“Notes on Figures in the Cave of Saris, and on Malula and its Dialect.”

By W. C. Winslow, D.D.—

“On Acoustics at Mounts Ebal and Gerizim.”

By Mrs. Finn—

“The Dead Sea visible from Jerusalem.”

By Rev. James Neil—

“Pits in the Shittim Plain.”

By Rev. Greville J. Chester—

“The Stone Mask from er Ram.”

By Rev. J. H. Cardew—

“Note on the Identification of Zoar.”

By Professor Sayce, LL.D.—

“The Lachish Inscription.”

By Henry Gillman—

“On the site of the Holy Sepulchre.”

By J. Stow—

“On Mount Horeb.”

Your Executive Committee desire again to record their special thanks to the Honorary Local Secretaries for their efforts so cheerfully and readily made on behalf of the Society’s work.

It is proposed that the following gentlemen be invited to become members of the General Committee :—

Lieut.-Col. Goldsmid, War Office.

Joseph Sebag-Montefiore, Esq.

Isidore Spielman, Esq., C.E.

John Dickson, Esq., Her Majesty’s Consul at Jerusalem.

Rev. R. Appleton, Trinity College, Cambridge.

W. M. Flinders Petrie, Esq.

G. F. Watts, Esq., Manchester.

F. D. Mocatta, Esq.

The following is the balance sheet of the year 1890 :—

BALANCE SHEET FOR THE YEAR ENDING  
31ST DECEMBER, 1890.

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
To Balance in Bank, 31st December, 1889 ..	375	6	5	By Exploration.. ..	550	17	6
Donations and Subscriptions .. ..	2,674	18	1	Printing and Binding, including <i>Quarterly Statement</i> .. ..	790	15	10
Proceeds of Lectures ..	26	14	8	Maps, Lithographs, Photographs, Illustrations, &c., including those for the <i>Quarterly Statement</i> .. ..	583	7	9
Sales of Memoirs of Western and Eastern Surveys, and Books published by the Society .. ..	619	17	4	Management, including Rent, Salaries, Wages, Advertising, Insurance, Stationery, &c. .. ..	587	6	5
Sale of Maps .. ..	278	16	10	Postage and Carriage of <i>Quarterly Statement</i> , Books, and Maps .. ..	142	7	10
Sale of Photographs ..	25	9	7	Liabilities paid off ..	535	0	0
				Balance in Bank, 31st December, 1890 ..	811	7	7
	£4,001	2	11		£4,001	2	11

This balance sheet was published in the April number of the *Quarterly Statement*, with the following notes by the Chairman :—

In the absence of our Treasurer, Mr. Morrison, it becomes my duty to make the following remarks on the balance sheet for year ending 31st December, 1890. The subscriptions and donations show a large increase on those of the year 1889. This was due to an appeal for funds for carrying on the excavations in Palestine, which brought in about £1,000.

The expenditure amounts to £3,189 15s. 4d. This sum is made up as follows :—

	£	s.	d.
Exploration .. ..	550	17	6
Publications .. ..	1,374	3	7
Management .. ..	587	6	5
Postage of Books, Maps, and <i>Quarterly Statement</i>	142	7	10
Liabilities paid off .. ..	535	0	0

The Society was on March 17th practically out of debt. A sum of about £350 was due to the printers. This, however, is a liability which varies considerably from time to time. The apparent discrepancy between the amount received from the sale of publications and that expended upon them, is mainly due to the fact that the *Quarterly Statement* is given to all subscribers—

an arrangement which gives stability to the Society, but costs between £300 and £400 a year. When allowance is made for this, it will be found that the difference is very slight; and indeed it disappears if the stock of maps and books in the hands of the Society be taken into account.

The CHAIRMAN.—The Report, I think you will see, indicates a steady continuance of work under some difficulties. The difficulties do not decrease as time goes on, in fact the Turkish Government becomes a little more suspicious, and the breaking up of the Siloam inscription has increased our difficulties, as suspicion has been created on all sides; yet, considering the nature of our work, I think the Report will be regarded as satisfactory from the large number of persons who have been interested and are steadily working to increase our knowledge in the direction in which we want it to be increased. I shall be glad if any gentleman will make any remarks on the Report before I put it to the meeting.

SIR FREDERICK GOLDSMID.—I venture to say, as a comparative outsider, that the Report appears to me most satisfactory, and especially so in this respect—that I have always considered that where it is necessary to keep a Quarterly Statement of any Society published every year, and certainly one like the Palestine Exploration Fund, in a short time subjects must to a certain extent become more or less exhausted, but I must say that the Palestine Exploration Fund has always struck me as having resources which no other Society that I am aware of can muster. It seems to me never to come to the end of matters of interest, and the last number of the *Quarterly Statement* and the previous number are to me most interesting documents. I see no falling off, no lack of interest in the publications of this Society, so much so that my own impression, without reference or talking to other people on the subject, has been, what a misfortune it is that the work of the Palestine Exploration Fund is not better known among educational establishments in this country. I cannot help thinking that in public schools, and in other educational establishments, something more ought to be known of the work of this Fund. I believe that it would draw young men to the study of the Bible in what I may term a pleasing and agreeable way, instead of this being done by compulsion, as it were. Unfortunately, one must use the word “compulsion” even with so great a subject as the Bible, but in works like that of the Palestine Exploration Fund you draw students towards the Bible almost imperceptibly, and therefore if it were possible to introduce it into the curriculum of schools or of educational establishments a very great advantage would be conferred. I must beg pardon for being perhaps rather irrelevant and even for getting up and speaking at all; for although you have done me the honour to put me on the General Committee, and I think it a very great honour, still I am a comparative outsider, because as I live in the country I have not been able to attend the meetings of the Society, and I can only feel my interest in the distance, as it were. (Cheers.) I beg in conclusion to move the adoption of the Report.

The REV. A. LÖWY.—As one of the old men in this room—one of the oldest men in this room, I venture to say a few words. In the first place this Report, which is so highly interesting, certainly deserves every possible support. The previous speaker has hit upon a point which has very often struck me as a matter of regret. There is no question that this Society does a great service underground and overground. There is an immense amount of knowledge being brought to light which has been hitherto buried under the earth. In addition, I believe, though it is not intended, the Society is really a precursor of an improved state of civilisation in Palestine, because the Society, in its valuable publications, draws attention to the condition of the modern occupants of the country, and many suggestions which are incidentally offered in the publications will help to improve the condition of the people. But I shall call attention to the lack of sympathy which, on the part of the public, seems to exist with regard to this Society. However well it may be supported, it ought to be supported infinitely better. I take the liberty of throwing out a hint—I won't call it a suggestion. It seems to me that if you had periodical meetings, giving lectures on the work of the Society, it would be of very great advantage in every way. I recollect the ancient Mohammedans used to call the Israelites "Ahl el Kitâb," meaning, the religionists, the people who cultivate the Scriptures; but some Mohammedan writers take that as a kind of ridicule. They state that the Israelites confined themselves to writing only, and it seems to me that if this Society, in addition to its valuable writings, were also to offer us, periodically, valuable lectures, not speeches, but lectures, it would draw. There are a great many persons who, in these days, when we are so overdone with literature, would much rather hear a lecture than read one. And so if it should be thought fit on the part of the Executive to give periodical lectures, at most, say, once a quarter—not once a month—it would draw a great many persons who are at present outsiders. With this observation, I cordially second the motion which has been proposed. (Cheers.)

The REV. W. J. STRACEY.—It strikes me, sir, that the change of rooms is a very great improvement. I think it brings the Fund so very much more into public notice than where it was stuck down close to the Thames Embankment.

Mr. GUY LE STRANGE.—I venture to make some small suggestion, especially after what Sir Frederick Goldsmid has said. It seems to me that it would be a good thing to have in the *Quarterly Statement* something in the form of "Notes and Queries;" that is to say, that there might be, a little by itself, a part for queries and for answers. Several times latterly in the *Quarterly Statement* questions have been asked and I have often very much regretted that answers have not been given to them, and I think perhaps that more attention would be called to the queries if something in the form of the publication of "Notes and Queries" were adopted, if there was a page of the *Quarterly Statement* set apart simply for queries. I don't know whether that would be possible.

The CHAIRMAN.—The Editor is here, and I have no doubt he will make a note of what you are saying, but we must leave the Editor to deal with that.

Mr. GUY LE STRANGE.—It would certainly bring the Palestine Exploration Fund into greater notoriety if it were known, if it were forcibly brought before people, that through the *Quarterly Statement* they could ask questions on Biblical subjects, and on Archæology.

The CHAIRMAN.—Before putting this motion, I should like to say the gentleman who has moved it has touched upon a subject that has often been before the Committee, how and in what manner we could bring our work before the schools with the view and the object that he has mentioned. Our Treasurer, Mr. Morrison, has often spoken on that subject. It still is in our minds that we want both sides of the Jordan thoroughly explored and mapped for schools; we don't like to see the one side more complete than the other. But there has been a little difficulty, which I believe has been before the meetings on a good many occasions, and I daresay it will continue till we shall at last succeed in some way in doing what we want to do. As to the gentleman who has seconded the motion, up to the present moment we have had no rooms to give lectures in. We have now got a room such as we never had before, and we are surrounded by something that is very interesting in our Museum. With those remarks I now put the resolution before the meeting.—Carried unanimously.

The REV. MR. TRACEY moved the re-election of the Executive Committee.

Mr. ROGERS.—I have pleasure in seconding the motion.

The CHAIRMAN, having put the resolution to the meeting, it was carried unanimously.

The CHAIRMAN.—Then, gentlemen, I have to ask you to give your best thanks to Mr. Schick. Mr. Schick neglects no opportunity of doing that which the Committee wishes. There is not a bit of ground opened in Jerusalem, there is nothing found there, but he has his eyes upon it, and, if possible, supplies us with the information quite truthfully. I would ask you then to give Mr. Schick, as you did last year, your thanks for his continued efforts, and the faithful reports which he has made to the Fund.

The resolution was seconded, and carried unanimously.

The CHAIRMAN.—Then, gentlemen, Mr. Bliss has only been one year with us, but his letters tell you that he is earnest. He had some experience with Mr. Petrie in Egypt, before he went to Palestine, and I hope that in the future he may outdo Mr. Petrie himself, but he has got to win his spurs in that respect. I should like to thank him for the efforts he has already made.

This vote of thanks was seconded and carried unanimously.

The CHAIRMAN.—Now, gentlemen, in the Report there is a statement about Mr. Armstrong. I should like you to look in that corner of the room at that raised map. I am deeply indebted to Mr. Armstrong, for

were there no one here in whom I could place implicit confidence, I should have no easy mind. I should be constantly coming here with great effort to myself; but with Mr. Armstrong about it is different. I would therefore ask you to thank one so faithful as Mr. Armstrong has been, to give him your best thanks, and to express our hope that he may continue to discharge his duties to our satisfaction as well as he has done in the past.

This vote was seconded and carried unanimously.

The CHAIRMAN.—Then there is the Honorary Secretary. There are two telegrams waiting for him to-day. Something has prevented Walter Besant being with us. He fully intended to be here, but he is not here. He is a busy man. Sometimes, I think, taking too much upon his hands, for it may close a useful life too soon. I ask you to thank our Honorary Secretary for the time he has given to us, and the interest he still takes in our success.

The vote was unanimously accorded.

The CHAIRMAN.—And lastly, though not least, there is the Editor of our *Quarterly Statement*. Not a word that has been said about the Notes and Queries, or in what way the *Statement* can be improved, will have fallen upon ears that have not listened, and he will think and see whether the proposal can be carried out. I need not say how and in what manner the *Quarterly Statement* is conducted. I was delighted to hear one speaker remark that it is read with interest. The *Statement* ought to have a more extensive reading, but I meet with it at times where I do not expect it, and find that the effects of our *Quarterly Statements* are of the most beneficial character, that they do guide people to the reading of the Bible, and the study of the Bible. Persons who in their schooldays looked upon the Bible as a book of punishment which they were compelled to read are now looking upon it as a book of pleasure to be studied and thought of. It is a great thing that all our work in Palestine has tended to confirm every year the accuracy of the Bible. I wish we could have more subscribers. We should then be more powerful. Every expenditure is made with economy, strict economy. I do look into the expenditure of all monies for every purpose. I am in a position of trust, and if subscribers should call upon me at any time to give an account of that trusteeship, I am always prepared. There is money that has come in for the excavations very well indeed. We have carefully and economically used that money, and we have done a very great deal with the money. I am certain that will be the general impression. Gentlemen, I thank you very much for your attendance to-day. I thank you for the kind observations you have made to help this Society. I do not know that there is anything more to say. Our meeting is completed, and I hope that at our next annual meeting every one of you will be present, and that we shall have a good account to give of the year's work.

The vote was unanimously approved.

Mr. J. D. CRACE.—Before the meeting breaks up I should like to ask

the members who are present to return one more vote of thanks, and that is to our excellent Chairman (cheers), whose energies seem equal to every occasion, and to the members of the Executive Committee. It is the Chairman who has attended every one of our meetings ; at any rate he has attended a majority in excess of any other member of the Committee. I believe he has only been once absent, and that through ill-health. There is hardly a detail, financial or otherwise, with which the Chairman is not more intimately acquainted than any other member of the Committee, and his efforts are just as fresh, as energetic, now as they were so many years ago when he accepted the post, with a diffidence which was quite unnecessary, as events have proved. I shall venture to ask his permission to put that to the vote for him.

The vote was carried by acclamation.

The CHAIRMAN.—Thank you, gentlemen ; thank you, indeed. I feel as I always felt that the thanks to your Chairman is a vote of thanks to your whole Executive Committee. Were it not for them it would be scarcely possible for me to get on with the work, but I have an excellent Committee ; their hearts are in their work, every one of them. I have a Committee of an extraordinary kind. I could hardly repeat all the qualifications of my Committee ; but here I am, and they allow me to be their head, and to assist in their labours. I can assure you that your thanks just given are well earned by every member. I thank you for thanking them, and I will convey to them your thanks. Let me congratulate you on the nucleus of our museum. Look around here ; last year and the year before and for several years it was at the South Kensington Museum, but it was comparatively hidden there, though it was open to the public, and we told everybody. But everyone did not find that little corner where the things were placed. We were compelled to remove them. We had no place to put them in, so for the last two or three years we put them in boxes and deposited them at Taylor's to be taken care of, and now for the first time we have a place in which to exhibit them. Look even at those lamps before me ; what a delight and a charm—a charm that grows upon you. The gentlemen who have taken an interest in this Fund may now take a greater interest in it through seeing our collections. I would ask everyone to take a deeper interest in it, and to enlist as many others as they can, for certain I am that there is not a gentleman or an educated person who will take up our works and read them, but he will be more and more interested in the subjects to which they relate. I thank you in the name of the Committee for the kind vote you have just passed.

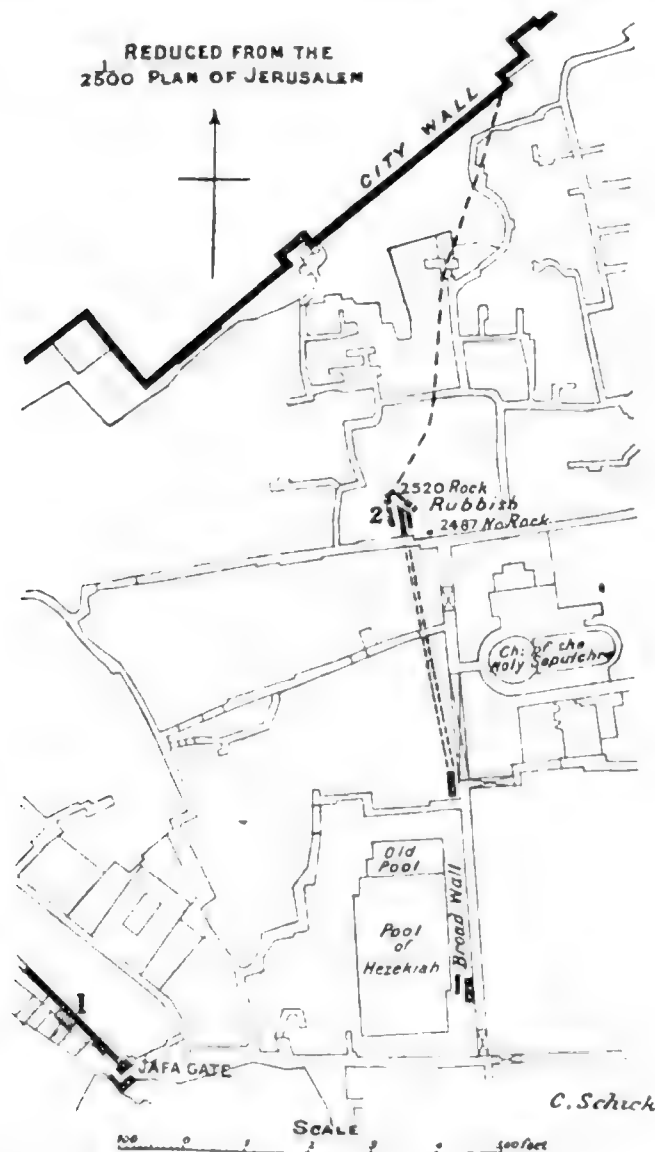
The Committee then adjourned.

## HERR SCHICK'S REPORTS.

JERUSALEM, *July 14th*, 1891.

THERE are several small things which seem to me of some interest to members of the Palestine Exploration Fund, so I think it right to report on them.

1. *Foundation of Present City Wall.*—I have already on two former occasions reported that the present western town wall from the Jaffa Gate northwards is not founded on the rock, but in some places standing simply on earth. I have now to report that I made this observation again at a third place. The building outside the Jaffa Gate, in which had been the office of Her Britannic Majesty's Consul, was taken down and built up



again on a much grander scale, requiring new and better foundations. On digging just in front of the present town wall to a great depth only *black earth* and rubbish were found, no natural soil. They went down about

24 feet below the level of the street and no rock was reached, so it is proved that there the wall stands on a layer of made earth from 25 to 30 feet high. When I saw it I was fearing the wall might fall and bury the workmen. On the map, scale  $\frac{1}{25000}$ , the surface of the road is there given as 2,530 feet above the sea, the rock where now the town wall stands must, therefore, be about 2,480, or perhaps a little more, rising rapidly towards east.

2. *Remains of Old Wall inside City.*—As I have stated in a former report, the Roman Catholics are demolishing a group of houses and building a large new school at the eastern part of the *Harat Deir el 'franj*, north-west of the Church of the Holy Sepulchre, north of the street where on the map the word EFRANJ stands. As several things of interest were found, I send a copy of part of the said map, with the new discoveries marked. The highest point in this square is about 2,520 feet, at other points it is much lower. There was found a kind of passage or road cut into the rock 7 and 8 feet deep and 6 feet wide, its bottom declining towards the Church of the Holy Sepulchre, in which direction it runs. It was laid bare for a length of about 15 feet; it ends abruptly in the east at a wall (with an opening) about 6 feet thick of very well hewn, but not large, only moderate sized, stones. At its eastern front there is a great quantity of rubbish. About 20 feet west of the said wall another and still thicker wall was found of larger stones, even 6 and 7 feet long some of them, and about 2 feet high. The direction of both (running parallel) is towards the south, as shown in the plan. These remains have for me a great interest. By studying the walls of Jerusalem (ancient and modern) I found that some Christian writers say that Constantine's buildings, or the Church of the Holy Sepulchre, reached to the western town wall (see "Tobler Top." Jerusalem, i, p. 135, and "Golgotha," p. 16). This "western town wall" could not be Hadrian's, which was at that time destroyed, and which had to be built by the Christians—the part from the Jaffa to the Damascus Gate—in A.D. 1063, from which time this quarter was assigned to the Christians. Without going into detail and argumentation, I wish only to say that I believe Hadrian's north-western wall decayed, and was for a long time not wanted, as in this quarter there were no houses, or only a few. So when Constantine had built the Church, the Church wanted protection, and a wall was built near to it on the west side, which wall was restored and improved by Eudoxia the Empress. This (western) wall began either at the corner of the so-called ancient "second" wall, or as I rather think started from the northern end of the ancient "broad wall," which is the dam or mound wall on the eastern or valley side of Hezekiah's Pool, of which I have in 1846 yet seen a piece, where now a house stands. It consisted of very large stones, which were broken up and used as common mason's stones. Such large stones were met with and broken when Messrs. Bergheim's office was established, north of the said pool and west of the Church of the Sepulchre, and now such a wall is found farther north, as described above. From this latter point it may have gone towards the ancient tower west of Damascus Gate, in some

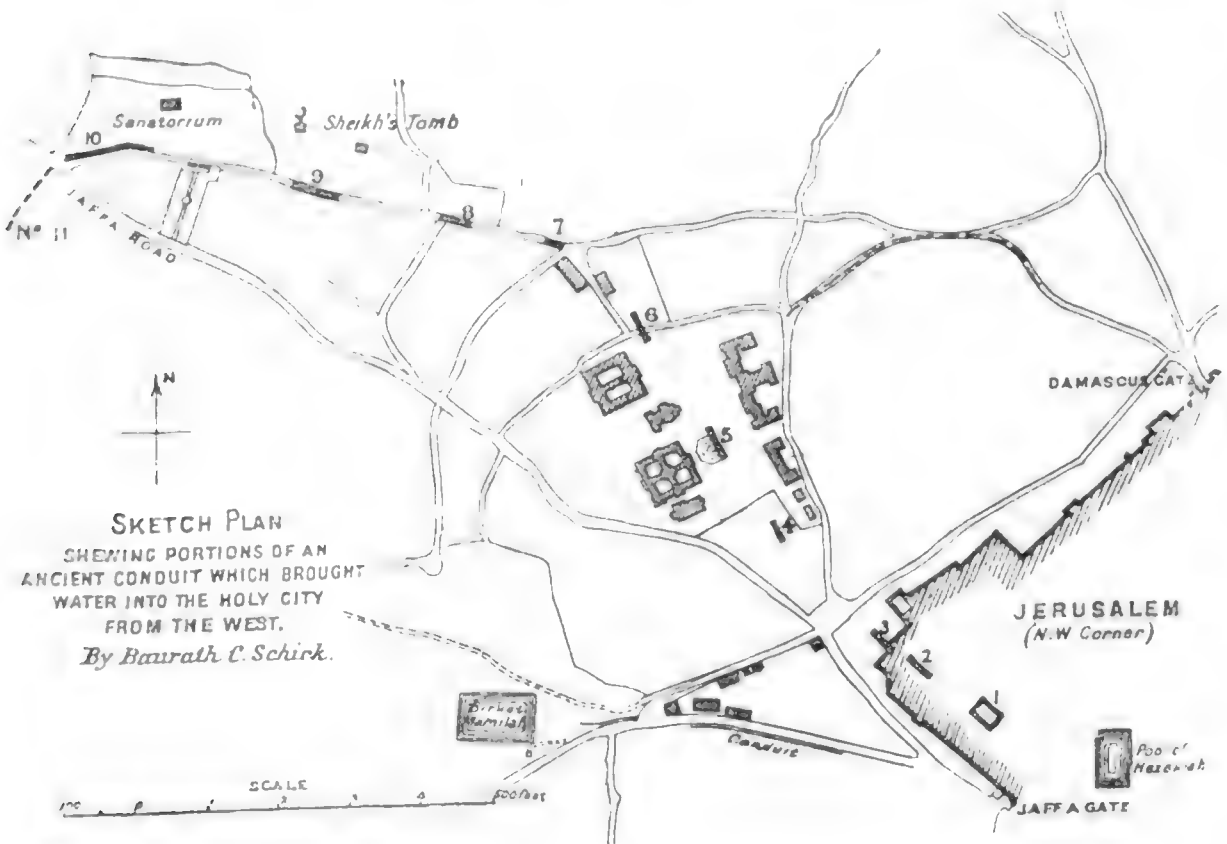
such way as I have indicated with a dotted line. When, afterwards, Hadrian's wall was again restored (as above mentioned) by the Christians, and the space embraced by-and-by filled with houses, the wall immediately west of the Church had no more any importance, and so its stones were used up in building the convents, &c.

3. *Protestant Burial Ground.*—There is an intention to enlarge the buildings of the late "Bishop Gobat's School," for which a portion of the burial ground is asked for, with the promise to give for it a larger piece of ground down in the valley. To effect this change a wall was made by the Church Missionary Society along the road going down to the valley. As this road had to be made somewhat wider, and the wall wanted a proper foundation, the rock which is near the surface was laid bare throughout. At the point where the contour 2,359 crosses the road, the opening of a rock-cut cave appeared. This cave was roundish in shape, about 18 feet in diameter, and more than a man high—as there was much earth in it, I could not get the exact height. It was no tomb, simply a cave, fit for shelter, or to keep things there. I tried to persuade the builders to utilise the cave for some purpose, but as the entrance was situated a little lower than the surface of the road, which caused some difficulty, they walled it up. On the ground lower down I observed very large blocks of rude stones which one might think to be rock, so I made some excavations in the hope to find something of importance, but found simply a kind of dry wall (or fence) along the contour 2,389. These stones are 10 feet or more long and broad, unshaped, not hewn, put upright on the surface of the rock, their smoother sides towards the outside (downwards). As the line kept on the same level, I suppose that a path or road went along (on the out or valley side) eastwards to the road coming down from "Bab Neby Daud," and perhaps even farther eastwards. Such walls, at some distance one from the other, the one nearest the city being always the higher, seem to have girded round the hill slopes of the Holy City, as can be shown also on other sides, and added to the strength of the fortification.

4. *Watercourse providing the ancient City with water from North-west.*—That such a watercourse once existed has been known for a long time. Sir Charles Wilson writes in his Notes: "Ordnance Survey of Jerusalem," 1865, page 81—"There are remains of a conduit coming in on the north-west of the city, first discovered when building the new Russian Convent (5), and since found at some buildings belonging to Mr. Bergheim (4), and also within the town when digging for the foundations of part of the Latin Patriarch's house (1 and 2); at the two last places it was visible during the stay of the surveying party at Jerusalem, but it could not be traced beyond the Russian buildings, or found in the neighbourhood, and it is hard to say from whence the water came. The sketch shows its size and construction."

Since this was written further remains of this conduit were found, and I have always kept an eye upon the matter. In the enclosed plan I give a rough copy of the Ordnance Survey Plan, in which I have

inserted the pieces found until now, and numbered them from 1 to 10, of which 1 to 5 are already mentioned in Sir Charles Wilson's report



above quoted, except No. 3, which was found by a Greek priest, digging in his garden. When in 1865 the English Mission built the boundary wall of their Sanatorium, under my direction, a long piece (No. 10) was found; the continuation towards the town went *under the road* itself, so I could not follow it. When about 18 years ago Dr. Chaplin built a house, a longer piece (No. 7) was found, and the new wall put into it, saving so the foundation diggings. When in 1882 I built my house, and the boundary wall of it, I found a destroyed piece, and also a still preserved piece (at No. 8), and when in 1889 the Russians made the sewer for their building as shown in the enclosed plan with dotted lines, two preserved pieces were met with, No. 5 and No. 6.

Recently the municipality corrected in some degree the road coming from the Damascus Gate, and meeting the Jaffa road at the Sanatorium, when a long piece of this conduit was laid bare (No. 9) into which a branch canal enters, coming from the surroundings of the Sheikh's tomb. Further west, or beyond No. 10, no piece or trace of such a conduit was met with, although there has been much digging and clearing for building houses. From the farthest known point in the west to No. 4, near the town, the decline is very gentle, but enough that the water might run very well. From 4 to 1 the decline is greater, and from 10 westwards, if the conduit continued near the surface, it would rise much, unless there were a tunnel. The

question where the water came from is even, until now, not answered, if one thinks of water from a source or spring. But I think, after taking everything into consideration, that this was not the case, but that the conduit simply acted as a collector of the rain-water, falling on the high, but flat, ground of the north-western plateau, and I hope one day to find traces in the region which I have marked No. 11.

I have also to remark that whilst Sir Charles Wilson's sketch, above referred to, gives slanting sides to the greater part of the conduit, at other places it was found with perpendicular sides, and also in some places deeper, as for instance at my house (No. 8), where it was 30 inches deep : the whole was filled with a very fine earth, the sediment of the once running water. It consisted of *sammaka*, or the common red earth, which was to me a proof that the rain-water of the neighbouring ground flowed in bringing this sediment with it, and that no spring water was running in the conduit.

5. *Some Innovations at Jerusalem.*—As I am not always in a position to report on discoveries of old things, I think it expedient, and interesting, to report also on modern changes and affairs. If one who knew Jerusalem, but has not recently visited it, should now approach it, he would, if coming from the west, hardly recognise it until he enters the Gate. So many new houses have been built, most of them covered with tiled roofs, that the city, and especially the suburbs, have quite a different appearance. Coming out from the so-called Jaffa Gate, one has, on the left hand, a new Custom House, and looking down the valley, towards the south, he sees a large building erected on the heap of rubbish brought there during the last 30 years. It is a kind of playhouse or theatre ; in its lower rooms, horses and carriages are kept. Since the Bethlehem road was made, some years ago, people have built shops and houses along it, and even in the bottom of the valley the Jews have recently erected several houses, small and large. But if the spectator goes on a few steps, looking towards the west, he has, on his left hand, first a khan, and then a row of shops, *all built on rubbish (without foundations)* ; to his right he has a grand building, those which were built 40 years ago, and in which were for many years the Custom House and the English consulate, having been pulled down, and much grander ones erected. Below there are shops and over them lodgings and rooms for offices, &c.

Going on one comes to the point where the road divides. Here is a new building, used as a kind of club house for the upper class and called "casino." Then follow shops, along the upper and lower road. On the left hand of the latter are a few houses, and from the former, a new road or street, going on straight, is made, and just where this begins the Armenian Convent has built a grand new hotel. On the ground floor are throughout shops along both roads. On the upper road there is, at another dividing of the road, a guard-house for soldiers, and further on shops and the coffee house belonging to the municipality. Having come to the crossing of roads, downwards (towards the south) the whole quarter is built over with houses, amongst which is the one belonging to Messrs.

Cook and Son, and a new large, yet unfinished, building of the French Sisters.

On the other or eastern side are some smaller houses, and further on the *new City Gate*, outside of which are new good buildings, and opposite, first the French Hospital, then the very large French Pilgrim Home, and lower down, the new lodgings for the officers of the Russian Consulate.

Farther to the west, along the Jaffa road, are, for a distance, shops on both sides, and behind the more permanent ones belonging to the municipality is the guard-house of the Police and Office of the roads. The remaining empty space there is to be made into a public garden. Behind this are Mr. Bergheim's house and the two hotels, which have by this arrangement greatly diminished in value and convenience. There is no longer a camping place in front of them. On the left is the English Deaconesses' house, the property of the Armenians. Opposite, inside the Russian wall, two buildings have been made: the larger as a hospital for patients with infectious diseases, and the smaller to keep and burn the things of such patients, or of the dead. To the Russian Mission House two additions have been made, and to the Pilgrim's Home also an additional building. Beyond the wall on the west a very grand and costly Pilgrim's Home has been erected by the Russian Orthodox Palestine Society, and further east, inside the wall, a building for the officers of this Society, also to the large Women's Pilgrim's Home an addition has been made, and an upper storey is to be added. The pool, which was formerly open, is arched over and made into a regular cistern. A sewer has been constructed at great expense, carrying off dirty water, &c., from the whole Russian building. It goes down to the Damascus Gate, enters the town sewer inside the wall, and so runs down to Siloah. On the Russian ground this new sewer has two branches, meeting outside in the road going down to the town gate. Opposite the Russian building on the east private houses are now built, in one of which Bishop Blyth resides.

It will be understood that these are only some of the new buildings near the city. Farther out, towards the north-west, many new houses are built, to a great distance. Also on other sides of the city scattered new houses are to be seen, and every year their number increases, especially towards the north.

At present I am making excavations at the ancient pool in the Upper Kedron Valley, or Wâdy el Jôz, of which I will report in my next. The land is now sold to Jews, and I had to measure it, and so I got an opportunity of digging. Leave to do so in other places I have not yet been able to get, and must wait for a better opportunity. The digging for water, and the Siloah Stone affair, have caused all the hindrances.

## REPORT OF EXCAVATIONS AT TELL-EL-HESY DURING THE SPRING OF 1891.

BY FREDERICK JONES BLISS, B.A.

ALTHOUGH Tell-el-Hesy was reached on March 5th, the weather rendered it impossible to begin work until Monday, March 16th. In the meantime some measurements had been taken, and a crop of barley had been bought, which covered the field where we had to dig. Later the crop of beans covering the Tell itself had to be purchased. Following the advice of Mr. Flinders Petrie, with which my judgment accorded, I began my excavations in the northern part of what he marks on his map as the West Town, the section worked being bounded by a line running from the north-west corner of the mount to a point about 350 feet west, and by a line running thence 231 feet south. To have turned over the whole mass of earth in this field would have required the whole season, and though the place was known to be Amorite, I decided to make trial trenches first. In eight days we had examined the field by digging about 30 trenches, my orders to the workmen being to uncover native clay, though in some cases it was not necessary to reach this. The smallest depth of débris was  $1\frac{1}{2}$  feet, and the greatest 17. We found all the characteristic varieties of Amorite pottery, as described and drawn by Mr. Petrie, *i.e.*, comb-facing, ledge-handles, thick-brimmed bowls, polished burnishing, peculiar spouts and hole mouths. That the latter were apertures for drinking, I do not feel sure, for later on in the Tell we found similar holes in various vessels, including the thick Greek drab bowls; some vessels contained two holes near together, or a number of holes. The painted Phœnician also occurred, sometimes being found in the lower depths, under archaic looking Amorite pottery. Jars filled with fine earth, and sometimes containing smaller vessels, were found buried, as in the place Mr. Petrie calls the cemetery. These were usually of the Phœnician type, and may belong to a later period than the débris of the field, but one bowl, 17 inches across, having ledge-handles, containing fine earth and a little brass serpent ring, was clearly Amorite. Not far from this we found a human skull with a bowl and lamp evidently placed in front of it. The distance between the two bowls being about the length of a man, suggested that these might have been placed at the head and the foot of a body, but on carefully uncovering the earth, we found that the bones between these were not human, and included the teeth of animals.

We made a most careful search for walls. Brickwork full of straw was often found, and great care was used in trying to determine its face and direction, but though repeatedly we thought we had found a wall in position, further examination always proved it nothing but consolidated ruin and decay. There were many signs of burning, while some of the ruins seemed to be the result of overthrow. I finally dug a pit,  $27\frac{1}{2}$  by

17½ feet at the top and about 12 feet deep, where we reached the clay, hoping that by thus uncovering a larger area we might attain more satisfactory results. A study of the sides of this hole revealed a curious irregular stratification, with lines of brick, rough stonework, burning, and decay, which indicated the ruins of three or four towns. Evident brick-work was found here as elsewhere, but in a ruined condition, out of which no order could be evolved. Workmen who, later in the Tell, traced obscure brick walls quite cleverly, and who last year uncovered walls for Mr. Petrie, were quite baffled by the decay in the west town. I was reluctantly obliged to decide that it was in a hopelessly ruined and consolidated condition, and that to spend any more time upon it would be unwise. In the large pit, at a depth of 8 feet, we found the fragment of a clay tray, with a rim an inch or two high, and a diameter of about 4 feet. It had a red face, with the polished Amorite burnishing in crossing lines. It was evidently in position, as it seemed to have been placed in a bed of mud. It was probably a place for baking bread, a fire of twigs being kindled in one part of it, and the dough being placed in the other, or else placed in the heated tray and covered over with ashes. At the bottom of the hole, in the native clay, there was a squared hole, like a grave, about 3½ feet deep, filled with decayed brick.

One and a half feet under the soil in this west town there was found a piece of cement flooring, of an irregular shape, curving upwards for an inch or more at the edges, about 6 feet long and 4 feet wide, with a narrow outlet at one end, descending apparently to a pit. This was probably some sort of a press for wine or dibs. Near by, and hardly more than two feet under the surface, was found a rough room with mud walls, in which there was very little straw, of varying thickness. In the course of digging various objects were found, such as stones with holes, used for weights in weaving, flints, door sockets, fragments of bronze, including a small cow-bell, a stone worn at the side as if by a rope, &c. Rude pavements and irregular masses of rough stones built together were found in various places. Long thin lines of black decay suggested human burials. Out of justice to the owners of the land we filled all trenches and pits dug, and smoothed the surface for the ploughing.

The work on the Tell has been necessarily one of detail. The work of determining the historical periods from a study of the east face, and of tracing the various city walls by a judicious series of trenches having been done with so much skill by Mr. Petrie, there remained for his successor the more laborious task of cutting down the mound itself in search for walls of dwellings which might remain, together with any objects which might happily be found. I saw at once that to cut down the whole mound by layers covering the entire area would be such slow work that at the end of the season but a small depth could be reached without increasing the workmen beyond one's powers of superintendence. If it were merely a question of removing rubbish it would be easy keeping 150 men hard at work, but when each man has to be strictly watched lest he destroy some wall or overlook some small object, I find

35 men quite enough. Our average was under this, as we had to reduce the numbers while waiting for the tram and while laying it down, and the last two weeks the numbers were very small on account of the harvest, which finally compelled us to close the work on May 15th. Thirty-five diggers means over a hundred work-people, for each man has two girls or women or boys to carry the earth to the trucks or to the side of the hill. I chose the northern half of the mound to begin on, because earth could be more easily disposed of at that end. As I wrote the Committee, my original plan was to cut down through the whole northern half, but three weeks' work determined me to further limit the area to the north-east quarter of the mound.

Beginning at the well at the centre of the east side (*see* Plate III, Mr. Petrie's "Lachish") I drew a line to the west, and from a point on this, about 100 feet from the well, I drew another line about 120 feet long, somewhat north-west to the northern slope. Within these limits we have cut down the mound to an average depth of 12 feet 4 inches, the greatest depth (near the well) being  $18\frac{1}{2}$  feet.

Accordingly, in round numbers, we have thrown in seven and a half weeks down on the river bed 140,000 cubic feet of earth and stones. Our area of work is now, of course, bounded on the south and west by cliffs of our own making, while at the east we are from 7 to  $18\frac{1}{2}$  feet nearer the river bed than when we began. At the north we have almost reached the base of what Mr. Petrie calls Manasseh's Wall, so that following his chronology we have been working in the later Jewish periods. The accompanying tracings of Petrie's plans will give a rough idea of the section worked. I may add that from a distance the Tell now produces a strange effect, having lost so big a slice from its north-east corner. I enclose a poor photograph showing the depth of the excavations.

In the first three or four feet of digging we found many graves, made in the rubbish of the last constructions. One grave was in perfect condition—a space hollowed out in the shape of a coffin with slabs placed across the top. It contained a skeleton, the skull being towards the east, and bracelets made of blue glass, such as are worn to-day. In connection with human bones and other supposed graves, there were bracelets of glass and of twisted brass, with anklets, precisely such as may be bought in any Arab market, beads and agates, such as the Arabs bury with their dead women. Thin glass was also found, also pipe heads, of a somewhat different shape from those in use to-day. A brass medal of the time of Abd el Hamid, notched so as to be tied under the chin, may or may not belong to the grave period, or it might have been dropped by a woman tending the crops on the hill. Another grave had not only slabs laid across it, but was partially lined with stones. This graveyard is undoubtedly Arab, and may not be more than a century or two old. I place it as far back as that as, until we covered it, its existence did not seem to be known, no objection being made to my digging there by the Arabs. The method of burial is such as obtains to-day.

These latest constructions in the rubbish of which the graves were dug were evidently very rough. We found quantities of stones from the river bed, in one or two cases built into rude walls, in others laid in rough pavements, not complete enough to plan. The remains of brick were mouldy and decayed, and very few traces of walling remained. The pottery showed a large quantity of thin, white-faced sherds of the late Phœnician or Jewish type, I should judge. One large jar was found whole, standing on its mouth upon stones, evidently thus placed.

The foundations of the first town of which any sort of a plan could be made were reached at a depth of about  $6\frac{1}{2}$  feet at the south end of the section, and at about  $3\frac{1}{2}$  feet at the north end. As the hill slopes down towards the north in a grade of 1 foot in 10, one would naturally expect that the bases of various towns had a similar incline. Such, however, is not the case, the north and south parts being nearly on a level—if anything, the north end being a trifle higher. Perhaps during the last period the buildings were higher and more numerous in the centre of the hill, thus producing more rubbish, and the rain scouring may have been greater towards the north. This town was in a very ruinous state, hardly worth planning, but I give a drawing to show its condition. As will be seen, the walls were the best in the north-west quarter, where a clean face was obtained and the thickness could be measured. The dimensions of one brick were  $14\frac{1}{2}$  inches by 9 by 5. The dozen tannûrs, or pit ovens, which were found proved that the ancient inhabitants of the Tell baked their bread in the same manner as the modern Syrians bake theirs. A pit is sunk in the floor of the house, or in a hut outside, two or three feet in depth, and is plastered with mud, which is built up for a few inches above the floor. The ground is levelled at the bottom of the pit, and salt is placed upon it before the layer of mud is plastered down. My man, Yusif, found salt in place under the mud. The tannûrs we found were irregularly circular, one having an average diameter of 85 centimetres, another of 80 centimetres. The sides were baked hard, showing use. I may explain that a fire is made at the bottom of the pit, and the dough, flattened out by hand, is stuck against the heated sides to bake. The first tannûr we found had been repaired by potsherds where the mud sides had given way. Fragments of similar ovens had also been found in the first foot or two of soil. A small pit with a diameter of 22 inches, and with thick sides of yellow brick, may have been used for storing corn.

In one place we came across a quantity of fine red earth, such as is used to-day in colouring the mud floors and walls, which are then polished. We found several jars evidently buried with intention. Mr. Petrie suggests a connection with heathen sacrifices in the apostate Jewish times for the jar burials in what he calls the cemetery outside the town enclosure. Near one of the ovens a jar, 24 inches in height, and 44 at its largest circumference, was found lying on its side. It seems to have been filled with fine soft earth after it had been put in position, as the earth seems to have been pressed down by the hand, being lighter on top. It contained bones, a stone, a flint, and a potsherd. Near it was a

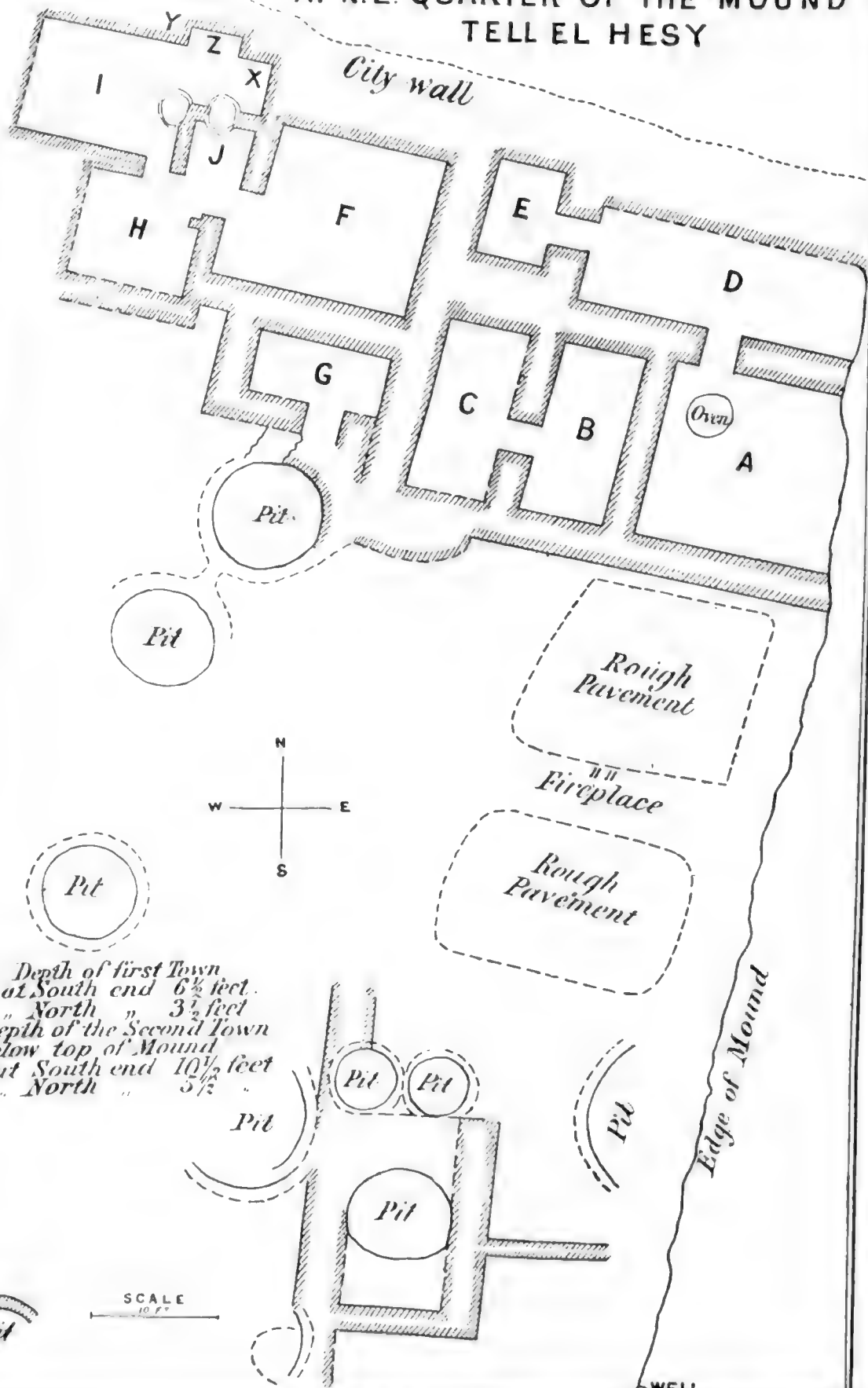
long cylindrical vessel with no handles. I do not feel sure of the purpose for these jar burials. We dug for two days in the "cemetery" and found, as did Mr. Petrie, jars with flasks inside, but no bones. Ibrahim Effendi suggests that they may have been buried by the inhabitants when fleeing from an approaching enemy. The stonework in this period was all rude. only a few squared stones appeared, and these showed no clear dressing. Two stones with markings were found, of which I took a squeeze, and give a rough sketch.

The most characteristic pottery included the Greek drab bowls (*see* No. 222, Plate IX, Mr. Petrie's "Lachish"), the immense loop handles (Nos. 225, 226), small Jewish jars, and a thin brittle ware of purplish black, mostly in the shape of jars with full bodies, short necks, and large mouths, with two small handles reaching from the neck to the mouth. Polished Greek black and red ware was scattered through the town; also fragments of immensely thick vessels, sloping to a point like a walking-stick, or ending in a knob. Hundreds of potsherds were turned up and examined by me every day, in the unfulfilled hope of an inscription, the men having strict orders to throw nothing away.

After planning the remains of the first town we cleared them away, and began to dig towards the foundations of the second, which we found at a depth of  $10\frac{1}{2}$  feet (from the top) at the south, and about  $5\frac{1}{2}$  at the north end. The first thing to be noticed was a curious stratification of fine clear yellow sand near the east side, covering an irregular space 17 feet by 10, on an average 6 inches deep. In some cases the sand over-spread stone pavements. In one place it lay between two strata of burnt stuff. This second town had been fiercely burned, as ashes lay almost everywhere, in some places to a considerable depth. It looks as if the sand had been a heap collected for making mortar, and after the houses had been destroyed by fire and the place deserted for a time, had been blown by the wind into the wavy stratification in which we found it. A new feature in this town consisted in the pits dug in the rubbish of the town below. These were irregularly circular, with diameters varying from 5 to  $9\frac{1}{2}$  feet. In some cases they had been lined with mud, which by a sharp tap of the pick could be made to fall off from the sides. Some had a fine coating of whitewash on walls and flooring. A fine thread of white in the cut made by the blow of the pick sometimes revealed this infinitely fine white coating which had remained for hundreds of years.

At Bureir (six miles from the Tell), pits for storing wheat are still used as in other parts of the country, notably the Hauran, but they usually narrow towards the top to a small mouth which is closed by a stone. The pits in the hill had straight sides, 3 or 4 feet high. I think, however, that they are granaries, the narrowing upper part of their walls having been ruined down. If the original depth of the pits was 10 feet, it is possible that they have belonged to the first and not to the second town. They were usually filled with fine feathery ashes, easily distinguishable from the more conglomerate decay in which they were dug. Much broken pottery was found in them. The sides of one pit showed a curious strati-

PLAN  
OF EXCAVATIONS  
AT N.E. QUARTER OF THE MOUND  
TELL EL HESY



fication of burning at an angle of 50°. One pit had deep rat holes in its sides. Grains of wheat and barley were found in several of them. However, that these were remains of what had been stored in the pit is not clear, as in this fiercely burned town I found a stratum of burned barley covering a space ten feet square, to a depth varying from two inches to a foot. We also found burned sesame, pulse, grape-seeds, &c. When Dr. Post has examined these I will report his opinion.

In the town above, walls in two cases gave a hint of taking a circular course, showing that similar pits were found there also. From the plan it will be seen that one pit is surrounded by walls. A curious incident in this town was a quantity of snail shells, hundreds in number, forming quite a feature in the stratification. I confess to no theory on this subject. Yusif, however, thought it confirmed the suggestions of Greek influence, as shown by the pottery, as he had heard the Greeks were fond of snails! Several stone door sockets turned up. A ruined fireplace looked as if it might have had compartments on either side for baking. Tannûrs also appeared.

At the north end of the town we uncovered two houses in very fair condition; I speak of them as two, for though contiguous there seems to have been no door between them. The east wall of the room marked A on Plan is worn away by the destruction of the cliff. A brick taken from its outer built wall measured  $20 \times 10\frac{1}{2} \times 6\frac{1}{2}$  inches. The inside bricks were smaller. The bricks were plastered over with a mud coating. Room A contained an oven in the floor. The north and south walls were 3 feet thick, and west wall 2 feet 7 inches. The floor of the room marked B was 6 inches higher, and was spread over to a depth varying from 5 to 8 inches with burned barley. The brick, originally of a brown colour, containing little straw, was burned a salmon colour by the fire which had destroyed the grain stored for some winter hundred of years gone by. Between rooms A and D, D and E, B and C, doorways were found  $2\frac{1}{2}$  to 3 feet wide. Between E and C, and E and F, the walls were 4 feet thick. Between F and H the wall was only 1 foot 8 inches thick. These houses seem to have been built against the north city wall, but in the town below we found the face of the city wall a few feet further in, *i.e.*, to the north. Still, it is possible that the city wall may have been thickened in the later town. The brickwork is much better in shape and material than that found in the modern villages of the district. In room C we found a stone about a yard long, roughly scooped out to hold water, possibly for a smith to dip the iron in. The walls of the rooms F, G, H, and I were built of a redder brick, containing more straw. H had been fiercely burned, and many fallen bricks were found, so hardened by fire that it was difficult to break them with a hammer. To the west of H we found many brick weaver's weights. Some were round, some shaped like pears or turnips, all had a punctured hole by which they could be fastened to the wooden pegs on which the skeins were wound. They varied from the size of a top to that of a large fist. I find in the weavers' places in Beirût rough stones used as weights, but no artificially rounded stones or brick weights

as at Tell Hesy. The only objection to supposing these rounded bricks weights, is that it would take such a quantity to weigh the skeins down. In the photograph of pottery which I send these weights may be seen. In room I there were many jars, mostly broken, some containing seeds. The pottery had a dirty, oily look ; possibly oil had been stored in this room, which may have accounted for its fierce conflagration. The recess (Z), in the north wall of this room, had a place like a seat, and to the left of this was a higher recess (Y) like a modern yuk, where beds may be placed in the daytime. In the walls of the recess (X) there were holes scooped out, such as are found at Malula and wherever mud houses are built for storing small objects. The walls here were good to a height of 3 or 4 feet. J is evidently a small storeroom, with a partition which never went to the roof. At first we supposed the round constructions to be pillars, but finally decided that they were originally hollow, evidently places for store. The western partition was of one thickness of large bricks, one which we took out whole being  $20 \times 20 \times 5$  inches. This closet was also filled with burned cereals, some of which were clinging to the mud plastering. Near the foundations of this town was found our only inscribed object, a rude lampstand with a few letters scratched across its base, but out of the centre—**APHEBAP**. The pottery of this second town varied little from that of the town above ; the Greek black and red polished ware was quite as plentiful, and if anything the pieces with patterns were more common. A very few pieces with Amorite characteristics turned up, such as ledge handles ; also some stray fragments of the painted Phœnician ware.

After clearing away the walls of the second town we dug down for about eight feet at the south end of one section, and some four or five at the north end, nearly to the base of what Mr. Petrie calls Manasseh's wall. So consolidated was the stuff through which we had to dig, that it is difficult to say whether we were working in the débris of one or of two towns. In some places the soil was clayey and of a greenish-grey, very hard to cut through. Rooms A, B, and C, in the plan of the second town, were built on ruins of similar walls in this third period. Signs of other walls were found, but not satisfactory enough to plan. Many pits were found, usually more symmetrical than in the town above. One, with a diameter of  $9\frac{1}{2}$  feet, apparently a perfect circle, had straight sides  $3\frac{1}{2}$  feet high, and contained many potsherds. Another, with a diameter of 13 feet, seemed to have an outlet, as a line of stones led to the edge of the Tell. The stones were fallen upon each other, but from the spaces between it seemed probable there might have been a sort of drain. Against this theory was the fact that the end of the supposed drain was a trifle lower at the pit, but on the other hand it is possible that the stones here may have sunk and settled, as they were placed on light débris, while at their east end they were laid on hard brickwork. Pit ovens were found and a fireplace on which a pot might be rested. The pottery differed little from that above, but the deteriorated form of the Amorite burnishing was rather more common, and some new shapes appeared. The Greek pottery

was as common as ever, and the fragment with the figure was from this period. A stone, 18 inches long by 12 wide, was found with a clean cut in it four inches deep, dressed evidently with the long stroke picking. Also another dressed stone turned up, evidently flaked and pocked. Through all the towns many sea-shells were found, some punctured with holes, evidently intended for ornament. Fragments of iron and bronze appeared—large nails, handles of vases, a knife, &c. Also many flints.

It was a disappointment to find this part of the work so unprofitable. An examination of the east face of the Tell gives some hint in advance of what may be expected below, and if we go on digging in this section we will soon come to a great many stones. Whether these will turn out all to be rough like those above, or hewn and carved like the pilasters found by Mr. Petrie in the south-west part of the mound, it is impossible to say. From the great number of pits found it looks as if the dwellings may not have been so numerous in the part of the Tell where we have been digging, but what is true of the towns above may not be true of those below. Having got so far down in this section it is my plan, if the Committee approves, to continue work in the same area in the autumn, and if everything is favourable, I may hope to get down towards the Amorite period, if not into it, though the latter is improbable, as the amount of stuff to be removed from this fourth of the hill is enormous. When the base of the earliest Amorite town is reached, it can be decided whether the results obtained from this section will justify the additional two years' task of removing the rest of the hill. If the extremely consolidated condition of the west town and the absence of objects therein is any criterion of what may be expected in the Amorite layers of the Tell, the prospects for rich finds are not very bright.

I cannot close my report without expressing my great sense of obligation to my friend, Mr. Flinders Petrie, who, during the month of January at the Pyramid of Meydum in Egypt, gave me instructions in the many details of excavation in general, and of the work at Tell-el-Hesy in particular, with a cordiality and patience that were unfailing. So clearly had he described the place to me, that when I saw the Tell for the first time, its details had a familiar air. Such genius as his for excavation is indeed rare. With Ibrahim Adham Effendi el-Khaldi, descendant of the great Khalid who took Syria for Mohammed, my relations were most friendly from beginning to end. He filled his post in a gentlemanly and honourable manner. In an unsettled country of Bedawin his presence was a source of security.

The gratitude of the Fund is due to the Rev. Dr. Elliott, of Gaza, for his kindness in permitting the tram and tents, &c., to be stored at the Mission premises during the summer.

My foreman, Yusuf, was an invaluable aid, as he had a talent for disentangling brick walls from the surrounding débris, and for getting the best out of the workmen, and that not by severity as much as by tact and by kind and just treatment.

*June 10th, 1891.*

## EXCAVATING FROM ITS PICTURESQUE SIDE.

By FREDERICK JONES BLISS, B.A.

The rolling country of Philistia with its rich red soil and its varying and vivid greenness was a genuine surprise to me. Our tents were placed where the land rises towards the crests and ridges at the south-west of Tell-el-Hesy. In every direction we could look at the delicious green of wheat, barley, and grass. Only one tree was in sight, and that crowned a small pyramidal hill two miles away. Far away to the east stretched the blue line of the Judæan hills, sometimes clear and sharp, again pale and mysterious. The spring flowers followed each other in bewildering variety. The glowing scarlet of the rich-textured anemone with its heart of black velvet was succeeded by the yellower red of the ranunculus, coarser and tougher in fibre, which in turn gave way to the fragile poppy, with its almost metallic sheen. So abundant were the flowers that they even grew within the tent! During the spring months the climate is delightful. I do not hesitate to say that it is far more bracing than the climate of Beirût. The nights were often cold, and the early mornings sharp. In early April we had two or three days of severe sirocco, which occurred again in May, but in general we suffered little from the heat. Unfortunately, the water from the springs near the Tell becomes stagnant and foul in May, and the Arabs had much to say of the malaria. I think we felt a touch of it before we left.

The sharp ridge to the south-west of the town, shown by Mr. Petrie to have been surmounted by seven feet of rampart, made a beautiful promenade, when one wished to see the sun go down after a day of hard work. Looking over the green sea of verdure I felt much as if I were pacing up and down the deck of a steamer. Life had the pleasant monotony of a voyage at Tell-el-Hesy, especially for the first six weeks, during which time the workmen, whom we may call the crew, did not change.

As far as I could make out, the mound is called Tell-el-'Helu, or the Sweet Mound, from the springs of sweet water, as often as Tell-el-'Hesy, which is spelled with the hard 'H and pronounced to rhyme with missy. Sheikh Harb, the head of the Jubarat Arabs of that district, told me that the term Muleihah, is applied to the part of the Wâdy several miles to the south-west, and is not used for the Wâdy near the Tell. He did not know the name Jizair which Mr. Petrie applies to the stream joining the Hesy at the mound, following the map I suppose which writes Jizair as a name of that stream a few miles to the south-west. Sheikh Harb called it Wâdy el Kaneitrah, from the mound, about a mile from Tell-el-Hesy.

I have never seen so strange an action of water as in this region. As Petrie points out, the soil is sandy with a cap of clay. I suppose that

after a heavy shower the water collects in the more level places, running off a slight incline until it reaches a place where the clay is thin, which suddenly gives way, when the water at once washes away the sand below, making deep irregular channels with almost perpendicular sides. The unusually severe rains of last spring altered the courses of roads. It was strange to find one's progress across a plain stopped by a sudden chasm twelve or fifteen feet deep, and thirty feet wide.

In the field west of the hill where Mr. Petrie dug, it was always possible to tell just where he had made a pit or trench by the luxuriance of the crop at any point. We turned over a lot of earth in this same Amorite field, and I daresay that next year's crop will be something very rich in consequence. The owners of the crops are an old man and his three sons, Bedawin. It was with the oldest son that we had our principal negotiations. They were at first very suspicious of us. After a day or two I asked the name of the eldest son, and after a little hesitation he said, "Hussein." "But," I said, "I have put it down in my notebook as 'Nasul,' how is that?" The young man looked foolish. "That is what I gave as my name to the gentleman last year, for I was afraid to have him write down my real name." It was quite touching to see how devoted they all became when, thanks to Yusif's diplomacy and real friendliness, we gained their confidence and affection; whereas at first they were always bothering us about harm done to crops; later they quite trusted that we meant to do the honest thing by them. The second brother, Jema'an, is a short, broad-chested fellow, with clear brown eyes, and a face as smooth as a girl's. It was a fine sight to see him stalk over the field, his cloak almost touching the ground, bristling with sword and pistols. The contrast between his abrupt and guttural speech and his winning manner made him an interesting anomaly. Salami, the son of Hussein, was the most comical little will-o'-the-wisp I ever saw. Though only five or six years old he used to pasture the cows. He was always bare-headed, and his hair was curiously cut with a long tuft hanging down behind. One moonlight night we visited the camp to see some dancing, and Salami's alert, active movements, as he sped from group to group, picking up the coloured matches we fired and threw, were most amusing. He declared his intention of coming off with me and becoming a Nusrani. He would often come to the tent for a tin or a lump of sugar.

We had many friends among the Bedawin. Sheikh Harb often came to see Ibrahim Effendi. He had a gentle melancholy manner, and an almost whining way of speech, nor is his dress at all rich as would befit the chief sheikh. Another principal sheikh we found more interesting. As he is an outlaw, I will not give his name. The Government have had a price set on his head for several years, as he shot a man dead in a coffee shop at Gaza for insulting the memory of his murdered sister. He is intelligent, and on the occasion of a discussion we found him truly eloquent. A theft had been committed, and arrests on suspicion having failed to bring to light the thief, it was decided to gather together all the sinners of the tribe at a certain willy, or tomb of a holy man, where

they should take their oaths that they were not guilty. It was all out on paper, as the man who had been robbed was from Jerusalem, and I heard the list of ten suspects read. Our Bedawy guard, Salami, told me that if a man took a false oath at the willy he would spit blood. The assembly met at the willy, but two of the sinners did not turn up—one being the man who had been arrested and released; so nothing was done. The man robbed had the right to demand restitution from the sheikhs, but refrained, as he was kind-hearted, and feared they would make a levy for twice the amount upon the people. This demand is according to Arab law. "You stole my money," said the man to the sheikhs, "I know no thief but you," and they accepted the responsibility.

The attempts to make the arrested Bedawy confess were farcically amusing. Threats having failed, this sort of argument was employed: "Perhaps you are innocent, and we will give you a chance to prove it. Rise and search the ravines about here where treasure may have been hid, and if you are innocent God will guide you. If you don't find the treasure we will know that you are guilty, and persist in concealing it. Put your faith in God and hunt."

It is inconceivable to the western mind that such a transparently hypocritical argument can be advanced and listened to with perfect seriousness. It was delivered with a pious earnestness, and heard with respectful patience. It meant, "Give up the goods and we will let you off;" both parties knew this perfectly, and yet the pretence was kept up. The attempt having failed, threats and abusive language, with direct accusations, of course came into play again.

We found a great contrast between the demeanour of the Arabs and that of the fellahin. A fine free carriage, an air of independence, an offishness when they feel you are a stranger, and a rare sweetness when they find you are a friend, are characteristic of the Bedawin. The fellahin are heavy, less alert, and far less independent. Of course it is the immunity from taxation and conscription which gives the Arabs their sense of freedom and superiority. We found the women very friendly and chatty when they came to sell eggs (ten or twelve for a penny), or when we visited the camps. These Jubarat Arabs sow and reap, but usually get the fellahin to do the actual work. Though the tents of the tribe are scattered over a large territory it seemed always to be known where any given man might be found. If we wished to see this or that Sheikh or man we sent a guard out into the green wilderness, apparently so vast and empty, and presently he would return with the person required. I never got over the oddity of this. We seemed to be in the midst of a complex, invisible society. It was uncanny.

One day an Arab rode up on a horse and dismounted. My horse was grazing near by, and we agreed to exchange. Whereupon he gave me the rein of his horse, put his hand in mine and repeated a formula of transference, and I did the same with him in delivering my horse.

As I was riding towards Tell el Nejileh one evening, I stopped to chat with a couple of Arabs. Said one: "Don't bewitch the Tell." "What do

you mean?" "Oh, we know what you do. You come to a Tell that is full of gold and treasure and bewitch these into the form of potsherds. Then you dig out the potsherds, take them to your country, undo the spell, and they turn back to gold and treasure." I had heard something of this before, and indeed I do not wonder that the Arabs feel the need of some such theory from their point of view to account for our expenditure of toil and money. Said I: "Shall I tell you the real reason why I dig? Is it not possible for a man to go to Mecca as a pilgrim for a few pounds, but will not a man spend a hundred on a pilgrimage, with everything fine and grand, all for the sake of religion? Now you know this is the Holy Land. Abraham, Isaac, Jacob, David, and Solomon lived here, and it is a matter of religion to come and unearth their towns and find out how they lived and what they did, if we can. Now, I don't expect you to believe me, but I am telling you the truth when I say that the purpose of the digging is not treasure, but one of religion." "Wullah, we believe you," said the man, "but what about the bewitched pottery?" Which, leaving us where we began, I rode off!

At first most of our workmen were from Bureir, a village six miles from the Tell. Before Ramadan most of the men slept at the camp, digging little shallow graves for a bed, when they covered themselves with their cloaks. The women and girls had the long walk both before and after work. Six miles' walk before 6.30 a.m., and six miles' walk after 5 p.m., with a hard day's work of carrying earth-piled baskets on the head in between, does not strike one as being an easy life, but more girls begged for work than we could employ. After a struggle between my sense of duty to the Fund and my general sense of philanthropy, I concluded that a Society for the study of the Holy Land would not object if these women and girls were permitted to reach their homes at sunset, although a half hour, or even an hour, of work might be lost. My belief is that the policy adopted secured the best possible work, and that the quality would not have been so good if we had kept them later. They worked splendidly for us, these men and women of Bureir, heartily and loyally, and I felt and feel grateful to them. At first they seemed a mass of indistinguishable fellahin, like a herd of cattle, but each developed an individuality. There was Sheikh Salim, a dear old gentleman, with a worn face, sweet and gentle, a patient and conscientious workman, who never needed to be watched. His only failing was a pardonable partiality to his little son who carried away the earth and was fond of play. As Sheikh Salim toiled in his deep trench who would recognise in this homely, quiet old man the wild figure seen at sunset dancing up to the grave of a holy man near the camp, shouting out guttural sentences, braying like a donkey, uttering the mingled roar and growl of an angry camel, then suddenly turning and darting off across country, to be brought back, swaying like a drunken man and almost as unconscious, by the young men who had rushed after him? It was whispered that this holy workman of ours would have kept on till he reached Mecca if he had

not been stopped, and that he did make nocturnal visits to the sacred city, being transported through the air !

Then there was Rahuma, our messenger to Gaza, a rather fussy man, with eyes of the poorest quality, which however never let the smallest object escape them. His daughter Fatmy worked with her brother Monsûr rather than with her father. It was a delicate arrangement, owing to the fact that Henda, Monsûr's sweetheart, wasn't allowed to work with him, but could help her prospective father-in-law. Henda settled down into a capital worker, though a bolder, wilder girl I never saw. Tall, straight, active, she made a picturesque figure in her slim blue gown, with stripes of figured crimson and her fringed white veil, as she darted, sickle in hand, from trench to trench, cutting down the rich barley before each digger. I was relieved to see the strength of will shown by Monsûr in rigidly keeping Ramadan, for he is a gentle youth, and I had feared that his prospects for matrimonial control over Henda were very frail. Suggesting this to him one day, I was answered, with a smile of mingled scorn and amusement that was very reassuring. When Monsûr thought he was on the scent of treasure, a bloodhound could not have been keener.

Quite a different character was the young Sheikh Mohammed. His title was a recognition that he could read and write ; in fact, he was an embryo theological student, and wore a white turban. His somewhat sanctimonious manner and generally meritorious air rather antagonised me at first, but he turned out to be a nice and simple lad enough. He brought to work with him a woe-begone old lady, his mother, in fact, who always spoke of him with pride as "the Sheikh." She used to sit at my tent door in the evening (she was too feeble to walk to Bureir) and drink a comforting and friendly cup of chocolate, groaning out her dismal thanks. When, in obedience to my conscience, I finally dismissed her, she exhibited an unexpected degree of spirit and departed in high dudgeon.

The child of the camp was little Ahmed, son of 'old Abu Jorul. He would play about the works all day, digging with a small pick of his own, tottering to the steep edge of the Tell under the weight of a basket of earth, and amusing himself in picking out pretty pieces of pottery. The east face of the Tell is very steep, and after a few weeks we had formed, with the earth thrown down, a fine slide, a hundred feet long.

One was at first rather nervous to see the girls so fearlessly approach the steep edge, putting so much force into the throwing. Indeed, one day a girl lost her footing and slid rapidly to the bed of the stream, but she took it as a good joke. I daresay if the solemn little Ahmed had gone over it would not have hurt him. He was very proud when he had earned a few coppers as wages, though he always promptly lost them. It was a great job looking over all the potsherds that turned up. These were all put aside by the men, to be examined by me at four o'clock, when I would mark with a pencil the pieces I wished brought to the tent. Nicier flints, prettier bits of ware, or bits of iron were usually concealed in the turban and brought out with great anxiety, for if I took anything a small

baksheesh was always given. This is Petrie's policy, and secures care on the part of the workmen. We found nothing important, but I feel sure that I saw everything found, and the baksheesh thus given for the season was under two guineas. The system (which I defend practically rather than theoretically) has one drawback—a man will sometimes bring a thing from a distance, and pretend to have dug it up on the spot. When a man declared he had dug up a coin of Constantine's, I was much puzzled for an instant, but I soon saw that the coin had been recently worn for some time by a pocket. I indignantly refused the coin, and dismissed the man at the end of the week. The case was easier when one old gentleman called me to his place of digging and delightedly pointed to an iron ring with two or three keys attached, which he declared he had found then and there! His dismissal was prompt, and had a salutary effect. As a rule, the men had a greater interest in digging out objects than in tracing walls, though there were half-a-dozen who were pretty good at this. The plan in my report gives a fair idea of how the section of the second town looked. It was with a strange, half-melancholy feeling that I ordered the workmen to clear away the remains, and the feeling grew stronger when they began to destroy the walls we had extricated with such care from the surrounding débris. My foreman Yusif never lost his enthusiasm for wall-hunting; and was to be trusted to destroy nothing in the search. His aid was invaluable in this.

Before and after work the women kept their faces modestly veiled, but attempted no concealment during work-time. The relations between the young men and the girls were freer and more natural than I have ever seen in this country, and it must be remembered these were all Moslems. When the girls had filled the trucks high with earth the boys would stick a bunch of wild flowers in at the top and roll the truck along the rails with great glee. As a rule the women got very good treatment. We used to get the men to relieve them by filling their baskets for them. The men would receive the pay both for themselves and the women who carried earth for them. But one week we had some extra girls, and I shall never forget the awful experiences of that pay-day, when, as usual, change being scarce, we paid two or three together with a gold coin. One virago declared with a look of great meaning that she must receive her money alone. When told that this was impossible, but that she must get it with two other women, she said: "Then I shall fight them," with the air of one impelled by a not-to-be-resisted fate: she must fight.

They often sang at their work, and when things were going slack, if one would call out some word of encouragement, another would take up the cry and soon all would heartily respond. One day I was counting the number of baskets a certain girl emptied into the truck. Noticing my attention, she began to work faster; soon other girls caught the idea and redoubled their work; the men, stimulated by the girls, dug fast and furious. Abdullah, who managed the train, stood by his truck

shouting and gesticulating like a London omnibus conductor, and soon the whole place was in a perfect whirlwind of work ; the most sluggish caught the wild infection, laughter resounded on every side, and in a quarter of an hour certainly over an hour's work was done. The effect of the fun lasted all day in increased good nature. These people are very easy to manage. I knew all their names. They like to be treated as individuals, and a little notice of them, if not vitiated with partiality, has a good effect.

On a moonlight night the men would dance for us. They formed a row and began to clap in time to a rude chant with refrain, bending one knee and throwing the body forward at intervals. The chant alternated with a fierce grunting that was weirdly rhythmical. When they had worked themselves up sufficiently we would call for Salami, our negro guard. Sword in hand, cloak flowing from his shoulders, this hideous creature would creep up like some beast of the forest ; when in front of the line he would flourish his sword, crouch before the dancers, suddenly advance upon them with a thrust of the sword, retreat, fall on his knees, sway back and forth, advance again still kneeling, sway back once more, and all the time emitting terrible guttural cries.

More than half the men kept Ramadan rigidly. Those that did not fast were chiefly young men about twenty, who one would think could have borne the fast better than the older men. The first day, one girl who tried to fast almost fainted. Seeing one stalwart youth eating one day, I reproached him with the title of Kafir—that is, infidel ; whereupon he severely replied, “ Oh, no, if I eat in Ramadan, I'm not an infidel, I'm only a hog ! ” They understood that as long as they remained Moslems we respected them more if they kept to their rules. The last day of the fast the fields about the Tell were gay with Bedawin merry-makers. The women had cast away their sombre garb of indigo, replacing it with dresses and veils of crimson silk with long, flowing sleeves. A girl would stand on the shoulders of a woman, who would grasp her ankles and execute a slow, circling dance, the girl standing perfectly straight. Men and boys dashed about on horses, firing pistols to encourage the women. At sunset the bachelors of the tribe gave a dinner to the maidens in the bed of the stream. I was invited to the feast, but a look into the pot was enough, for I recognised therein every part of a sheep's anatomy in one unhappy *melée*. While the pot was boiling I was asked to assist in the accounts, as the bachelors were somewhat anxious to know the amount each one had to pay. My pompous little friend Jema'an was there. I asked him if he was going to show me his bride, for on this feast occasion the women were closely veiled. A fierce young fellow stepped up and declared that it was none of Jema'an's business, and I should not see her. Jema'an explained to me later that on the first feast day after the wedding the bride reverts to her relatives, and for that day the husband has no control over her.

Our good Bureir workmen stayed with us for only six weeks and

then verily the Philistines were upon us. It was very discouraging to have to begin with a raw, rude lot who cared nothing for us and for whom we cared nothing. With the Bureir people we had the advantage of Petrie's picked men and we had the pick of the town besides. The Fâlûjeh horde was an untried one, and tired us in consequence. Their laziness, dulness, and incapacity soon taught me to understand the strictures made by Petrie on the Syrian workmen, criticisms which I had resented as severe during our blessed Bureir period. However, in time we secured some good results even from the Fâlûjeh people. Hassan, who began as a labourer and ended as a guard, was a real addition to our camp force. He had a splendid physique, was honest and gentle. Years ago when journeying among the Arabs he took the fancy of a Bedawy who offered him his little girl in marriage. Hassan could not refuse the offer, and paid a camel and fifty goats for her. She was then under ten, and for several years he was a father to his little wife, caring for her with all tenderness, dressing her and putting her to sleep. He is still very fond of her, though he is now engaged to a second girl and is preparing to extend his harem. He already regrets this, but when asked why he did it, he smiles apologetically, shrugs his shoulders, and says, "What shall I do? The man would offer her to me."

We had several visitors at the excavations. My father came for ten days. Mr. and Mrs. Gray Hill called on their way from Egypt to Jerusalem, and four other parties saw the place. As I have said before, we made many friends among the Arabs, and it was very pleasant the last evening to hear from the distant camps the improvised chants sung in our honour, full of wishes for a safe journey.

## ADDITIONAL NOTE ON THE CHURCH OF ST. STEPHEN.

By Professor HAYTER LEWIS, F.S.A.

SINCE I wrote the description of the church at Jerusalem which I believed to be that of St. Stephen, I have learned from Dr. Edwin Freshfield that another example of the receptacle for liquids which I there described as being level with the paving and occupying the usual site of the altar, exists in the church of St. Eirene at Constantinople. This church is specially alluded to by me in a note to the P. P. Text Society's translation of Procopius (page 14) and it was, no doubt, rebuilt by Justinian late in his reign.

It has three aisles and an apse at the east end.

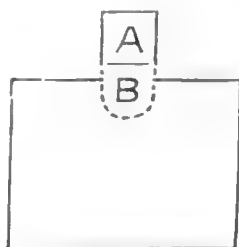
It has been for many years used by the Turks as an armoury, and was and is, an excessively difficult place to visit owing to their foolish jealousy; but it was cleared out in 1881, and fortunately Dr. Freshfield was enabled to see it so cleared.

He describes the apse (v. *Athenæum*, 15th August, 1885) as having marble benches, somewhat similar to those at Torcello, near Venice.

By an unexpected stroke of good fortune he was enabled to obtain two excellent photographs of the interior, showing the receptacle for liquids, to which I referred above.

These he has kindly lent to me.

The shape was clearly this: but the exact connection between the



large part and the lip is concealed by a large pump at A and a stone cistern at B, with which the Turks have adorned it. This is the only existing example, other than that of St. Stephen's, which I have been enabled to find.

8th September, 1891.

## RUINS ABOUT MERJ HÎN IN SUBALPINE LEBANON.

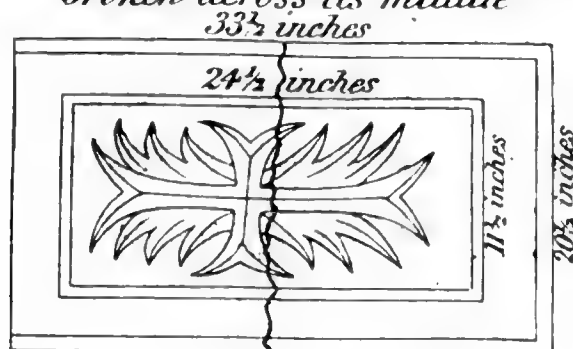
By the Rev. GEORGE E. POST, M.A., M.D., F.L.S.

ON the morning of the 22nd of July of this year, Professor Robert H. West, M.A., of the Syrian Protestant College, Rev. J. Stewart Crawford, of Damascus, and myself left our camp at Merj Hîn, a beautiful meadow in the northern part of Lebanon, just north-east of the Dohr-el-Qodîb range, and rode up the Wadi Şifşâf towards Rijâl-el-'Asherah, the northernmost two mamillary projections of the Dohr. When half way up the valley we were informed that there was a ruined village above. At the head of the valley is a meadow about half a mile long and a quarter wide, in the middle of which is a tarn. This meadow is called *Merj Buswâyyeh* or *Buswâyyeh* or *Buswâyyeh*. The average pronunciation is *Buswâyyeh*, which I have adopted. There was an Arab tent in the upper part of the Merj. Taking a couple of the cheesemakers as guides, we

climbed the slope at the end of the meadow, and at a height of about two hundred and fifty feet we came upon a somewhat level spot about a hundred yards in circumference. Before us stood the steep slope of Dohr-el-Qodib. On the right an open grove of lizzâb trees, with the ruins of the village going some hundred and fifty feet to two hundred feet up the side of the valley. On the left was a similar valley side, and near the top a cemetery of rock-hewn tombs, with a few lizzâb trees interspersed.

The ruins consist of hewn stones, often still lying in the lower courses of the walls, giving the idea of a style of construction quite superior to that of the modern villages in the remoter parts of Lebanon. Near the lower part of the ruins we found half of a sculptured stone, apparently the lid of a sarcophagus, or part of an altar. By hunting about we found the other half. I made the accompanying sketch of the whole, with the line of fracture as represented.

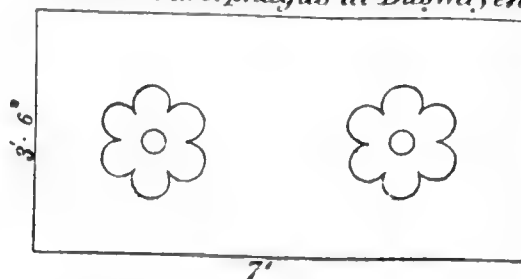
*Cover of Sarcophagus? from Buṣwâyeḥ  
broken across its middle*



The first half was found just below and the second in the ruins of a small church, of which the semicircular apse remains. It is six feet in diameter. The herdsmen assured us that there were inscriptions, but could not show them to us lest we should use them in finding treasure.

Near the top of the hill was a sarcophagus, without any inscription. On the face of it were two rose figures sculptured into the stone.

*Face of a Sarcophagus at Buṣwâyeḥ*

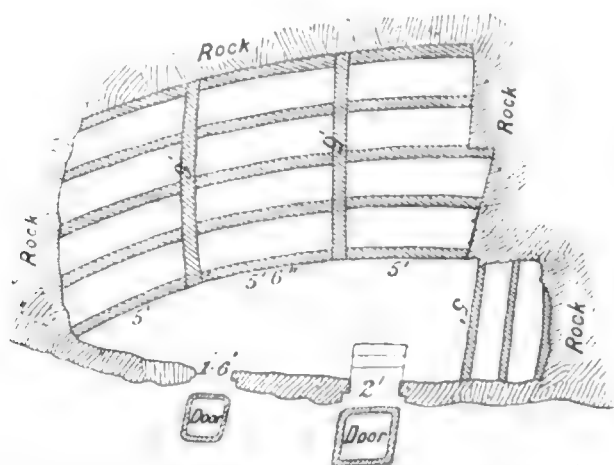


The village may have had from two to three hundred inhabitants. Its lowest portion is over 7,000 feet above the sea. At a little distance

from it, over the divide which separates the Buswâyeḥ valley from that of Ain-el-Beïḍa, are several springs, the most copious of them giving its name to the Wadi-'Ain-el-Beïḍa. Dr. Wm. Thomson came up the latter valley to its head, and then appears to have sheered off over the top of the range which forms the left flank of the Buswâyeḥ and Şifşâf valleys, and so just missed these most interesting ruins. He makes no mention of them in his picturesque description of his ride from Sîr to el-Hurmûl.

On the opposite side, the right (east), of the valley are the rock-hewn tombs. I did not stop to count and plot them, as our time was limited. But there are a number, and their style of execution carries us back to the early Christian or Pagan period. I found no Christian emblems, nor, in fact, any emblems at all sculptured on the rocks, nor inside. There were many bones and fragments of bones in the sarcophagi. In several instances there were quite old juniper (lizzâb) trees growing in the mouths of the sepulchres, obstructing entrance to them.

The accompanying plan shows the construction of the principal sepulchre.



*Specimen of Rock hewn tombs at Buswâyeḥ*

The slabs used as doors were in this case supine before their respective doors. The floor of the sepulchre was about eighteen inches lower than the bottom of the main door. It is now encumbered with rubbish. The roof is four feet above the top of the partitions between the tombs.

On the following day I obtained information of four other ruins around Merj Iḥîn. One is found in Arḍ-el-Ḥimâ (أرض الحمى) on the west flank of the enclosing mountains of Merj Iḥîn. My informant told me that it consisted of a portion of a masonry conduit and a built wall, halfway up the mountain side, about opposite the middle of the meadow.

He told me that in the eastern mountain mass overlooking the meadow, an hour away, there was a ruined village with hewn stones similar

to those of Buswâye. It is called Kharâb-el-Îâtîm (خَرَابُ الْإِئْتِم).

There is also not far from this last Qarnet-er-Ruweis (قَرْنَةُ الرُّوَيْس) a small ruin. He was not clear whether there were hewn stones in it.

At the northern end of the Merj is a ruin of a more modern aspect, apparently a fellâh village of our own, or a late epoch. The outlines of the houses are easily traceable, the only stones employed being unhewn ones. It is interesting as showing a more recent occupancy of the Merj by a settled population.

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ON THE MONTHLY AND ANNUAL MEAN TEMPERATURE OF THE AIR IN PALESTINE AND ENGLAND IN THE TEN YEARS ENDING 1889.

By JAMES GLAISHER, F.R.S.

THE following discussion of the temperature observations at Sarona and Blackheath is in continuation of those published in the *Quarterly Report* for July, 1891, pages 224—239.

TABLE XIII.—Mean Temperature of the Air in each Month at *Sarona*.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	50.7	59.5	52.4	56.5	50.5	54.4	57.0	54.1	53.3	56.5	54.6
February..	55.7	56.2	49.8	54.2	53.3	55.5	57.8	54.2	57.6	57.5	55.2
March ..	56.6	58.3	58.0	60.0	57.4	59.5	58.3	57.2	65.3	63.0	59.4
April ..	63.6	67.2	62.4	61.4	65.6	63.2	62.4	65.5	64.8	62.8	63.8
May ..	69.0	68.5	65.3	66.0	67.1	71.7	66.2	68.3	68.2	71.5	68.2
June ..	73.6	71.0	69.5	73.3	74.0	73.8	74.7	73.3	72.8	74.2	73.0
July ..	77.2	76.7	74.9	75.7	75.5	77.3	75.8	76.0	78.9	79.0	76.6
August ..	79.0	80.1	77.6	78.8	77.4	77.7	78.6	78.8	79.4	79.3	78.8
September	76.8	78.1	76.8	74.4	74.0	77.1	76.8	77.0	77.2	78.2	76.6
October ..	73.6	72.4	72.0	73.0	71.2	74.4	72.4	76.0	77.8	78.6	74.1
November	68.8	65.5	66.3	64.4	62.8	65.2	63.1	67.5	61.3	60.3	64.5
December	56.9	56.8	59.9	56.1	59.8	61.0	58.2	60.5	56.0	57.8	58.3
Means ..	66.8	67.5	65.5	66.2	65.7	65.9	66.8	66.5	67.7	68.4	66.9

By selecting in each month the lowest and highest numbers in Table XIII, the mean temperature has varied—

In January	from ....	....	50°5 in 1884 to 59°5 in 1881
February	„ ....	....	49°8 „ 1882 „ 57°8 „ 1886
March	„ ....	....	56°6 „ 1880 „ 65°3 „ 1888
April	„ ....	....	61°4 „ 1883 „ 67°2 „ 1881
May	„ ....	....	65°3 „ 1882 „ 71°7 „ 1885
June	„ ....	....	69°5 „ 1882 „ 74°7 „ 1886
July	„ ....	....	74°9 „ 1882 „ 79°0 „ 1889
August	„ ....	....	77°4 „ 1884 „ 80°1 „ 1881
September	„ ....	....	74°0 „ 1884 „ 78°2 „ 1889
October	„ ....	....	71°2 „ 1884 „ 78°6 „ 1889
November	„ ....	....	60°3 „ 1889 „ 68°8 „ 1880
December	„ ....	....	56°0 „ 1888 „ 61°0 „ 1885

The month of lowest mean temperature in the ten years was February, 1882, and was 49°·8, and that of the highest was August, 1881, and was 80°·1.

By taking the differences between the lowest and highest temperature in each month, and the mean of the ten years, in Table XIII., the greatest departures in each month from the mean of ten years, are in—

Below the mean of 10 years.			Above the mean of 10 years.		
January ....	....	4°1 in 1884	....	and	4°9 in 1881
February....	....	5°4 „ 1882	....	„	2°6 „ 1886
March ....	....	2°8 „ 1880	....	„	5°9 „ 1888
April ....	....	2°4 „ 1883	....	„	3°4 „ 1881
May ....	....	2°9 „ 1882	....	„	3°5 „ 1885
June ....	....	3°5 „ 1882	....	„	1°7 „ 1886
July ....	....	1°7 „ 1882	....	„	2°4 „ 1889
August ....	....	1°4 „ 1884	....	„	1°3 „ 1881
September	....	2°6 „ 1884	....	„	1°6 „ 1889
October ....	....	2°9 „ 1884	....	„	4°5 „ 1889
November	....	4°2 „ 1889	....	„	4°3 „ 1880
December....	....	2°3 „ 1888	....	„	2°7 „ 1885

The largest departure below the mean was 5°·4 in February, 1882; the next in order was 4°·2 in November, 1889, and 4°·1 in January, 1884.

The smallest departure below the mean was 1°·4 in August, 1884; the next in order was 1°·7 in July, 1882, and 2°·3 in December, 1888.

The largest departure above the mean was 5°·9 in March, 1888; the next in order was 4°·9 in January, 1881, and 4°·5 in October, 1889.

The smallest departure above the mean was 1°·3 in August, 1881; the next in order was 1°·6 in September, 1889, and 1°·7 in June, 1886.

The mean temperature in August was the most uniform; the next in

order were July and September, the departure in these months from the mean being, in—

August....	....	....	1°4 below, to 1°3 above the mean.
July ....	....	....	1°7 „ 2°4 „
September	....	....	2°6 „ 1°6 „

The mean temperature in January was the most variable; the next in order were March and November. The departure from the mean in these months were, in—

January	....	....	4°1 below, to 4°9 above the mean.
March ....	....	....	2°8 „ 5°9 „
November	....	....	4°2 „ 4°3 „

The month of lowest mean temperature in each year has been—

Seven times in January, viz., in 1880, 1884, 1885, 1886, 1887, 1888, and 1889.

Twice in February, viz., in 1881, and 1882.

Once in December, viz., in 1883.

The three coldest months in the year are January, February, and December, and their mean value is 55°·9.

The month of highest mean temperature has always been August, and has varied from 77°·4 in 1884 to 80°·1 in 1881. The mean temperature on the mean of 10 years of the months immediately preceding and following August, viz., July and September, were of the same value, viz., 76°·6. The month of August was warmer in the year

1880	than July by	1°8,	and warmer than	September by	2°2
1881	„	3°4	„	„	2°0
1882	„	2°7	„	„	1°8
1883	„	3°1	„	„	4°4
1884	„	1°9	„	„	3°1
1885	„	0°4	„	„	0°6
1886	„	2°8	„	„	1°8
1887	„	2°8	„	„	1°8
1888	„	0°5	„	„	2°2
1889	„	0°3	„	„	1°1

And these three months are the three hottest months in the year, and their mean value is 77°·3.

The coldest month on the mean of 10 years was January, when the mean temperature was 54°·6, but February is nearly as cold, being 55°·2; then the mean temperature increases monthly by nearly 4½° till June, then a slower increase till August, the warmest month, viz., 78°·8, and then decreases, the greatest change from month to month being from October to November, which is as large as 9°·6, and further sinks 6°·2 to December.

The lowest mean annual temperature was 65°·5 in 1882, and the highest was 68°·4 in 1889. The mean of the 10 years was 66°·9.

TABLE XIV.—Mean Temperature of the Air in each Month at *Blackheath*.

Months.	Years.										Means of 10 Years.
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	
January ..	32.5	31.6	40.1	41.2	43.2	35.8	34.9	34.6	36.3	35.2	36.5
February ..	41.6	38.1	42.0	42.7	42.1	43.8	32.9	38.2	34.2	36.4	39.2
March ..	45.2	43.6	46.6	37.4	45.1	40.3	38.9	37.6	37.8	40.0	41.3
April ..	47.5	47.0	48.8	48.4	46.0	48.3	46.0	43.9	43.4	46.3	46.6
May ..	52.9	55.1	55.8	54.4	54.9	51.4	52.5	50.1	53.4	57.4	53.8
June ..	57.9	60.1	57.4	60.5	58.8	61.0	57.9	61.4	59.2	62.1	59.6
July ..	62.1	66.0	62.0	60.9	63.8	66.3	63.2	66.4	58.9	62.1	63.2
August ..	63.1	60.0	61.4	63.2	65.9	59.6	62.3	62.5	59.7	61.1	61.9
September	59.8	56.6	55.8	58.0	60.4	55.7	59.2	54.1	55.5	55.9	57.0
October ..	45.8	45.9	51.0	50.7	49.3	45.8	53.0	44.3	44.4	48.0	47.8
November	41.9	46.7	42.4	43.2	42.2	42.6	43.1	39.4	45.7	43.4	43.1
December	42.1	39.3	39.9	39.9	40.9	37.4	36.2	35.8	38.9	36.0	38.6
Means ..	48.8	48.4	49.6	49.1	50.4	48.1	48.4	47.4	47.3	48.7	49.1

By selecting in each month the lowest and highest numbers in Table XIV., the mean temperature has varied in—

January	from	...	...	31·6 in 1881 to 43·2 in 1884
February	,,	...	...	32·9 „ 1886 „ 43·8 „ 1885
March	,,	...	...	37·4 „ 1883 „ 46·6 „ 1882
April	,,	...	...	43·4 „ 1888 „ 48·8 „ 1882
May	,,	...	...	50·1 „ 1887 „ 57·4 „ 1889
June	,,	...	...	57·4 „ 1882 „ 62·1 „ 1889
July	,,	...	...	58·9 „ 1888 „ 66·4 „ 1887
August	,,	...	...	59·6 „ 1885 „ 65·9 „ 1884
September	,,	...	...	54·1 „ 1887 „ 60·4 „ 1884
October	,,	...	...	44·3 „ 1887 „ 53·0 „ 1886
November	,,	...	...	39·4 „ 1887 „ 46·7 „ 1881
December	,,	...	...	35·8 „ 1887 „ 42·1 „ 1880

The month of lowest mean temperature in the ten years was January, 1881, and was  $31^{\circ}6$ , and that of the highest was July, 1887, and was  $66^{\circ}4$ , these values are  $18^{\circ}2$  and  $13^{\circ}7$  lower respectively than the lowest and highest monthly temperatures at Sarona.

By taking the differences between the lowest and highest temperature in each month, and the mean of the ten years in Table XIV., the greatest departures in each month from the mean of ten years are, in—

Below the mean of 10 years.				Above the mean of 10 years.			
January	...	...	4·9 in 1881	...	...	and 6·7 in 1884	
February	...	...	6·3 „ 1886	...	„	4·6 „ 1885	
March	...	...	3·9 „ 1883	...	„	5·3 „ 1882	
April	...	...	3·2 „ 1888	...	„	2·2 „ 1882	
May	...	...	3·7 „ 1887	...	„	3·6 „ 1889	
June	...	...	2·2 „ 1882	...	„	2·5 „ 1889	
July	...	...	4·3 „ 1888	...	„	3·2 „ 1887	
August	...	...	2·3 „ 1885	...	„	4·0 „ 1884	
September	...	...	2·9 „ 1887	...	„	3·4 „ 1884	
October	...	...	3·5 „ 1887	...	„	5·2 „ 1886	
November	...	...	3·7 „ 1887	...	„	3·6 „ 1881	
December	...	...	2·8 „ 1887	...	„	3·5 „ 1880	

The largest departure below the mean was  $6^{\circ}3$  in February, 1886; the next in order was  $4^{\circ}9$  in January, 1881, and  $4^{\circ}3$  in July, 1888.

The smallest departure below the mean was  $2^{\circ}2$  in June, 1882; the next in order was  $2^{\circ}3$  in August, 1885, and  $2^{\circ}8$  in December, 1887.

The largest departure above the mean was  $6^{\circ}7$  in January, 1884; the next in order was  $5^{\circ}3$  in March, 1882, and  $5^{\circ}2$  in October, 1886.

The smallest departure above the mean was  $2^{\circ}2$  in April, 1882; the next in order was  $2^{\circ}5$  in June, 1889, and  $3^{\circ}2$  in July, 1887.

The mean temperature in June was the most uniform, the next in order were April, August, September, and December, the departure from the mean in these months being, in

June	....	....	....	$2^{\circ}2$ below to $2^{\circ}5$ above the mean.
April	....	....	....	$3^{\circ}2$ „ $2^{\circ}2$ „
August	....	....	....	$2^{\circ}3$ „ $4^{\circ}0$ „
September	....	....	....	$2^{\circ}9$ „ $3^{\circ}4$ „
December	....	....	....	$2^{\circ}8$ „ $3^{\circ}5$ „

The mean temperature in January was the most variable, the next in order were February and March; the departure from the mean in these months being, in

January	....	....	....	$4^{\circ}9$ below to $6^{\circ}7$ above the mean.
February	....	....	....	$6^{\circ}3$ „ $4^{\circ}6$ „
March	....	....	....	$3^{\circ}9$ „ $5^{\circ}3$ „

The month of lowest mean temperature in each year has been

Five times in January, viz., in 1880, 1881, 1885, 1887, and 1889.

Twice in February, „ 1886, 1888.

Once in March, „ 1883.

Twice in December „ 1882, 1884.

The three coldest months in the year are January, February, and December, being the same as at Saronā, and their mean value was  $38^{\circ}1$ , being  $17^{\circ}8$  lower than at Saronā.

The month of highest mean temperature in each year has been—

Six times in July, viz., in 1881, 1882, 1885, 1886, 1887, and 1889.

Four „ August, viz., 1880, 1883, 1884, and 1888.

The three hottest months in the year are June, July, and August, and their mean value is  $61^{\circ}6$ , being  $15^{\circ}7$  of lower temperature than the three hottest months at Saronā.

The coldest month at Blackheath on the mean of 10 years is January, when the mean temperature was  $36^{\circ}5$ , being  $18^{\circ}1$  colder than at Saronā, it then increases irregularly till July, the hottest month, viz.,  $63^{\circ}2$  being lower than mean of July at Saronā by  $13^{\circ}4$ , but lower than August at Saronā by  $15^{\circ}6$ . The temperature then decreases month by month to January, the large autumn decrease, which at Saronā is from October to

November, and  $9^{\circ}6$  in amount, takes place here a month earlier, viz., from September to October, and is as large as  $10^{\circ}8$ .

The lowest mean annual temperature was  $47^{\circ}3$  in 1888, and the highest was  $50^{\circ}4$  in 1884. The mean of the 10 years was  $49^{\circ}1$ , being  $17^{\circ}8$  lower than at Sarona.

By comparing the numbers in Tables XIII. and XIV. together, it will be seen that in every month the temperature at Sarona is very much higher than at Blackheath. The least and greatest differences in each month, together with the mean for 10 years, are as follows : in—

			the least differ- ence was		the greatest was		the mean of 10 years was
January	....	....	7·3	....	27·9	....	18·1
February	....	....	7·8	....	24·9	....	16·0
March	....	....	11·4	....	27·5	....	18·1
April	....	....	13·0	....	21·6	....	17·2
May	....	....	9·5	....	20·3	....	14·4
June	....	....	10·9	....	16·8	....	13·4
July	....	....	9·6	....	20·0	....	13·4
August	....	....	11·5	....	20·1	....	16·9
September	....	....	13·6	....	22·9	....	19·6
October	....	....	19·4	....	33·4	....	26·3
November	....	....	15·6	....	28·1	....	21·4
December	....	....	14·8	....	24·8	....	19·7

The month of least difference was January, 1884, and was  $7^{\circ}3$ , and that of the greatest was October, 1888, and  $33^{\circ}4$ .

The least annual difference was  $15^{\circ}3$  in 1884, and the greatest was  $20^{\circ}4$  in 1888. The mean difference of the 10 years was  $17^{\circ}8$ .

The months of least difference are June, July, and May, the mean difference of these three months being  $13^{\circ}7$ ; and those of the greatest differences are October, November, and December (September being of nearly the same value as December), the mean difference of these three months, viz., October, November, and December, being  $22^{\circ}5$ .

## MOSAICS ON MOUNT ZION.

BISHOP GOBAT SCHOOL, MOUNT ZION,  
JERUSALEM, *July 8th, 1891.*

In Captain Conder's report to the Palestine Exploration Fund on "The Rock Scarp of Zion," dated January 10th, 1875, he alludes to a great quantity of Mosaic pavement apparently fallen from above, near the wall, built at right angles to the scarp and where Mr. Maudslay's

work terminated towards the north. From time to time large pieces of the mosaic pavement have been found in that place. During the last week a great deal of rubbish has been removed with the intention of building an outhouse; this has laid bare a considerable portion of pavement perfectly horizontal in position. About three yards below this the top of a cistern was discovered with two well-worn rock-cut steps leading to it. The cistern was filled with rubbish fallen in from above; it is apparently a large one, though an accurate estimate cannot be formed from the small part excavated; it seems to be of the beehive shape, but it may prove to be square. There are portions of fine cement still adhering to its sides. The cement is formed of lime, sand, and pottery, though only a very small proportion of the latter.

Rude masonry, which possibly may have been the foundation of more steps, is built upon the edge of the cistern which comes immediately below the boundary wall. The cistern will be about four yards from the outer face of the scarp exposed in the Greek Catholic Cemetery. It is at a higher level than the other cisterns found in the school, and judging from its appearance is most probably of the same date.

In examining the tool-marks left on the Rock Scarp of Zion, and also those of the so-called tombs of the Kings and Judges on the north of Jerusalem, I have been surprised to find a great similarity of workmanship. The water-channels which are cut in the face of the solid rock are also on a similar pattern. Might I ask if attention has been drawn to this?

FRANK T. ELLIS.

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## THE LACHISH INSCRIPTION.

Note by Professor A. NEUBAUER.

ACCORDING to Professor Sayce's communication the original of the Hebrew inscription from Tell-el-Hesi is **לסמך** and not as Professor Clermont-Ganneau states, with too much assurance, a word in which the second letter is a *heth*. *Hasák* is unknown as a proper name, whilst **סמך** occurs in the Bible as a composite proper name in **אחיסמך** (Exodus xxxi, 6, xxxv, 34, and xxxviii, 23) and in **סמכיהו** (1 Chronicles xxvi, 7).

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## NOTES BY MAJOR CONDER, R.E.

## I.

## THE LACHISH TEXT.

It is curious to observe that the three scholars who have treated of this text all (no doubt for the sake of brevity) speak with equal certitude as to the reading, but fail to agree, except as to the first and last letters. One may be pardoned in consequence for having put forward yet a fourth suggestion.

M. Clermont-Ganneau gives a solution which would make the text even later than I suggested, but the difficulty seems to me to be that he

also suggests a letter  which cannot be paralleled as far as I can find on other texts. If he could give us examples in which the *Cheth* takes the form he supposes, that might settle the question in his favour.

Also it is to be remarked that the personal names *Samak*, *Hamak*, or *Hasak* do not recall any known historical names. If the name is a personal one, the owner must apparently have chosen his pot before it was baked (and it is curious that such a piece of pottery should have been so much valued), unless the letters can be shown to have been cut on the baked clay. M. Clermont-Ganneau has seen the importance of this point.

## II.

## THE LACHISH RUINS.

The Greek inscription, mentioned by Mr. Bliss, will be of importance to the determination of the dates of buildings at Lachish; for if only a few letters remain, yet these letters will show the date approximately of the text.

Mr. Petrie considers that the site was not occupied after the 5th century B.C. I should have judged from the descriptions and mouldings that the site was certainly occupied about the Christian era, and probably in the Byzantine age, and that the masonry with drafted edges, ascribed to the 8th century B.C., may turn out to belong to the 5th century A.D. This conjecture is strengthened by the account given by Mr. Petrie of the tooling of the stones.

Every letter of inscription which can be obtained is therefore of value.

## NOTES ON THE PALMYRENE INSCRIPTIONS.

By Rev. HARVEY PORTER, B.A., Professor of History and Archæology  
in the Syrian Protestant College, at Beirût.

THE inscription on the Palmyrene bust (female figure) published in the  
January *Statement*, in the article by Dr. Post, I read as follows :—

Left side.

חבל  
אחא בת  
חלפתא  
בר ברע(א)  
זבדע(א)תא

Right side.

כץח  
אלע  
אנת  
ווי  
1333

In Hebrew characters—

חבל  
אחא בת  
חלפתא  
בר ברע(א)  
זבדע(א)תא

בירח  
אלול  
שנת  
461

Alas !

Aha, daughter of  
Haliftha,  
son of Bar'aa,  
Zebda'thah.

In the month  
of Alûl (September)  
in the year  
461 = (150 A.D.).

The final letter in the fourth line of the left inscription may be ה instead of א. Either one is common as an ending of Palmyrene names. The first two names in this inscription I do not remember to have seen before. Haliftha seems to have the same root as Halifi, found in De Vogué, *Ins. Sem.*, No. 9. The last name is a compound of Zebed, which occurs frequently ; the last part may be referred to עת, *opportunity*—the whole meaning *a timely gift*. It is probably the same as זבדע(א)תא, found in De Vogué, *Ins. Sem.*, Nos. 5, 63, 74, &c. He refers the latter part of the name to עתי, *Athe*—a certain divinity worshipped by the Syrians. The name would thus indicate the *gift of Athe*. The name Bar'aa may be referred to ברע(א), *a gift*.

The correct readings of the inscriptions on the large slab of five figures published in Dr. Post's article on his journey to Palmyra in the *Quarterly* for January, 1891, are as follows, beginning from the *right*, which I number 1, 2, 3, 4, 5.

No 1, *marked* (E)—

חלל בר עז  
בר ברנב  
ברנב

In Hebrew characters as follows—

צלמברעתו  
בר ברנבו  
ברנבו

“The Statue of Bar’atû, son of Barnabû, son of Barnabû.”

No. 2, *marked* (D)—

נבראח  
ברנב אחא

In Hebrew—

ברעתה בר  
ברנבו אחוהי

“Bar atah, son of Barnabû, his brother.”

It is interesting to note that the name Bar’atah (or Bar’athah) is the same as that found upon the gravestone discovered at South Shields, published by Wright, in the “Transactions of Society of Bib. Archæol.,” vol. vi. The same name is found in an inscription on a bust published by Simonsen (*Skulpturer og Indskrifter fra Palmyra*, Kjobenhavn, 1889). Bar’atu is essentially the same. We find many of the Palmyrene proper names recurring in the same family or in different families, sometimes identical, or only with slight variation as above. The same peculiarity is observed still among the Syrians and Arabs. They employ a few favourite names generation after generation. This becomes a source of great confusion in determining the personality of historical characters. We cannot infer that the person indicated on the monument found at South Shields belonged to the family commemorated by our sculptured slab, but yet it is quite possible, as that person was a Palmyrene.

No. 3, *marked* (G)—

ברנב ברנב  
אחא

In Hebrew—

ברנבו בר  
אחוהי

“Barnabû, the son of Barnabû, his brother.”

No. 4, *marked* (B)—

בִּנְיָמִן  
בְּרִנְבּוּ

In Hebrew—

נְבוּגַרְי בֶּר  
בְּרִנְבּוּ אַחֲוָהִי

“Nabûgrî, son of Barnabû, his brother.”

No. 5, *marked* (A)—

עֲמַתָּה (בִּתּוֹ)  
מִקִּימוֹ (בֶּר)  
גְּרִיבוֹן  
אִמְתָּהּ

In Hebrew—

עֲמַתָּה (בֶּרֶת)  
מִקִּימוֹ (בֶּר)  
גְּרִיבוֹן  
אִמְתָּהּ

“‘Amtha’ (daughter) of Moqîmû, son of Ghribûn, their mother.”

The name Barnabû, which occurs so many times in these inscriptions, is found also in De Vogué, *Ins. Sem.*, No. 73. He derives it from Bar-Nebo, “Son of Nebo,” which is doubtless correct.

## SENNACHERIB'S CATASTROPHE AT NOB.

ISAIAH x, 28-34.

By Rev. W. F. BIRCH.

If any should object that Isaiah x does not refer to Sennacherib, or that Nob was not the scene of his disaster, I shall make good my title by producing evidence sufficient to satisfy such as believe that Zion, the City of David, was solely on Ophel (so called). Those who profess to believe *on evidence* that it was situated elsewhere, are obviously themselves already proof against all I can say.

My earliest attempt in *Quarterly Statement*, 1877, 51, to identify Nob was, I now see, doomed to failure from the first, since I did not know (1) how to deal with profane writers (*e.g.*, Josephus and the son of

Sirach), and (2) that Isaiah x, 28-32, must remain a *sealed* passage until the topography rightly understood be used to elucidate the history.

In regard to this passage or march an amusing variety of opinions exists. Some consider it to be too *poetical* to be *actual*, others too *particular* to be *prophetical*. It seems to me that all four epithets are in this case equally merited. This description of the last two days of Sennacherib's campaign is certainly "one of the most picturesque and magnificent representations that human poetry has ever produced." It was uttered as a prophecy, and is rich in detail, of which point after point was minutely fulfilled. Isaiah declares first *the route*, then *the reconnaissance*, and lastly *the rout* of the Assyrian. I will now give the story, and afterwards (if needed, as I hope) the proof.

### THE STORY.

Another Passover was at hand. Rab-shakeh with his strong detachment had rejoined Sennacherib at Libnah, reporting the utter failure of his braggadocio at Jerusalem.

The great king was vexed at Hezekiah's firmness; but chagrin gave place to anxiety on his learning that Tir-hakah was marching against him.

It was now necessary for Sennacherib to put himself in the best posture of defence against this powerful foe, and most desirable for him to gain possession of Jerusalem without any delay. Accordingly, leaving Libnah, he marched northwards. Up the famous ascent of Beth-horon toiled the vast Assyrian host laden with spoil; but instead of advancing by the direct road to Jerusalem, it suddenly turned to the left at Khurbet el Lattâtîn and passing Beerôth went off in the direction of Bethel. The Jewish watchmen posted on Nebi Samwîl (Mizpeh of Benjamin) would duly report to Hezekiah the Assyrians' approach, and sudden turn to the north, and the subsequent reappearance of their vanguard on the east side of Bethel, as if marching down towards Ai. Jerusalem would be troubled at these tidings, but Hezekiah might calmly reflect, "The Assyrian (though he meaneth not so) is but fulfilling the words of the prophecy 'He is come to Aiath (Ai)';" a prophecy leading him eventually to Nob and destruction.

Another hour brings the Assyrian to Migron; before nightfall he has laid up his baggage at Michmash, crossed the difficult "passage," and occupied Geba (Jeba). Thus the first day's prophecy is accomplished. The predicted route has proved the actual route. The march that to a hypocritical nation seemed foolish and impossible has become an accomplished fact.

In this strategical movement, Sennacherib has shown prudence. He has acquired as his basis a strong defensive position, the identical one selected by the countless host of the Philistines in the days of Saul. Hence he can retreat at will: here Tir-hakah can only attack him at a

great disadvantage ; here his vessels of gold and silver, the spoils gathered from conquered cities, are perfectly safe.

Another day dawns, and more prophecy is fulfilled. The Assyrian scouts probably mount to the plateau, a mile and a quarter west of Geba, and gazing over hill and dale see on every side a terror-stricken neighbourhood. The precision of the details in Isaiah x, 29-31, is such, that it is incredible that anyone who had not visited the spot should ever have so accurately described the panorama. It may be that actually standing on one of the remarkable stones noted by Mr. Schick in his June report, the inspired prophet first foretold in impassioned language the advance of Sennacherib. Facing north (as in the view of Moses from Pisgah) he in imagination espies the enemy at Ai, and traces his advance to Migron, Michmash, "the passage," and Geba ; all places within his view. Now turning round to the south he names town after town as they appear in consecutive order in the prospect before him from west to east. Standing there to-day, and turning to Isaiah x, 29-31, we have the true key to the landscape before our view. Village and ruin to the number of seven, perched each on its own hill, still remain to answer perfectly to the exact position required in this perplexing prophecy. Here on our right over against us is Ramah, the Deceleia of Baasha ; next comes Gibeah of Saul suitably overhanging the valley of blood : next, almost due south, we see Gallim, the home of Phalti, Saul's son-in-law, and more to the left, Laish. Then comes poor priestly Anathoth ; next, on its ridge, Madmenah (corrupted from Azmaveth), and last of all, due west of us, is the site of Gebim (close to the (true) Rock Rimmon), whose inhabitants, to escape the Assyrian, snatching up their household goods, fled for concealment to Benjamin's favourite refuge, the cave of El Jai in Wady Suweinit, a hiding-place not to be attacked with impunity, either then or now.

Meanwhile, Sennacherib, marching westward, has gained the main road to Jerusalem ; by noon he has passed Shafat, and soon after on his surmounting a slight eminence, the Jewish capital bursts full upon his view. He beholds at last the object of his march, and at once the advance of the whole army is arrested. He halts at Nob, and feasts his eyes with the sight of the holy city, its eastern ridge crowned by the temple, the mount of the daughter of Zion, and (to the right of it) the more elevated western hill of Jerusalem, *i.e.*, the upper city of Josephus.

But the mid-day heat is past, yet the great host remains motionless. Why is this ? Hannibal hovered about Rome, and Richard I beheld Jerusalem from Mizpeh, and turned back ; but why should the great king with his enormous army come to a dead stop at Nob, only a mile and half from Jerusalem.

Prophecy had said, "As yet shall he remain at Nob this day" ; but what did he know or care about such prophecy ? Sennacherib, however, though haughty, was not without the wisdom of the serpent. It was all very well on the monuments to boast of capturing third-rate places like Eltekeh and Timnath (in Dan), at the beginning of the war. Lachish, however, and Libnah had recently given him trouble enough.

He knew, too, it took three years to reduce Samaria. Jerusalem was a still greater city and better defended ; in fact, it was a first-class fortress, situate in a district (thanks to Hezekiah's precautions) almost waterless in the summer months. Sennacherib knew well enough he had no time to take Jerusalem by force. His tongue and pen must therefore serve him for sword and spear, and for gaining Jerusalem he has to rely far more on bluster and blasphemy than on bows and banks.

Accordingly, in order to deal privately with Hezekiah, he dispatched to him a letter defying the God of Israel (2 Chron. xxxii, 17 ; 2 Kings xix, 10-13) and then, like a fowler watching his net, he waited at Nob to see the result, shaking his hand.

That letter ruined Sennacherib. He might with impunity carry captive 200,000 Jews (they deserved it), but when he took to writing blasphemy, his iniquity was full indeed. Accordingly it was no marvel that, when Hezekiah after reading the letter, at once, without consulting prince or prophet, "went up into the temple and spread it before the Lord and prayed" (2 Kings, xix, 16), the answer was at once brought by the prophet, Thus saith the Lord concerning the king of Assyria, he shall not come to this city, still less shoot an arrow there, still less come before it with shield, still less cast a bank against it. "For I will defend this city, to save it, for my own sake," &c.

What ! shall Sennacherib, exasperated by silent resistance, with nearly 200,000 men at his feet and less than two miles from Jerusalem, not even come near to observe it as did Titus ? No ; for the mouth of the Lord hath spoken it.

The envoys returned without any reply from the Jewish king, since the God that answereth by fire was himself sending the answer direct that very night.

We may imagine how Sennacherib would now vapour on Scopus, brandishing and waving his hand in sight of the Jews, and thus indicating that he would soon make Jerusalem an offering to his god. It was too late, however, in the afternoon for the army to move forward that day.

The sun went down, and the full moon rose over the mountains of Moab. Hezekiah, happy in his God, and some at least in Jerusalem with him, betook themselves to keep the Passover feast. On and beyond Scopus the 185,000 lay down to sleep their last sleep, while Sennacherib, perhaps, caroused with his leaders and captains. As the night advances the gentle breeze of evening grows to the fatal blast ; angry clouds drive up from the south-west, the moon is obscured ; all around is pitchy darkness. Suddenly a flash of lightning immediately followed by a crash of thunder confounds the host. "At the voice of Jehovah shall Asshur be panic-stricken" (Cheyne), and rattling hailstones quickly add to his terror. A terrific storm, like that at Beth-horon or Eben-ezer in days of yore, has broken upon the camp of the Assyrians. Jerusalem escapes unscathed. Safe within its walls the inhabitants must have witnessed with joy and thankfulness the distant raging of the elements, heaven's artillery playing with deadly effect upon the myrmidons of Sennacherib,

flash after flash of lightning illuminating the distant heights as far as Mizpeh and Tell el Ful, while shrieks of terror rent the air between the claps of thunder. At last an hour of horror ends in the stillness of death. One may slightly alter the poet's words to describe the scene :

Jam satis terris nivis atque diræ  
Grandinis misit Pater et rubente  
Dexterâ sacræ jaculatus arcis  
Terruit hostem.

In abject terror, Sennacherib and a few others had huddled together for safety into the rock-cut tombs on the west side of Nob. Possibly that now styled "The Cave of Grapes" (Enab, ? corrupted from Nob) sheltered on that awful night both the dust of the high priest Ahimelech and the trembling form of the great king. Almost all the host, to the number of 185,000 men, perished, either killed by lightning or crushed to death by hailstones. Thus Isaiah's words were fulfilled, and "thus the Lord saved Hezekiah and the inhabitants of Jerusalem from the hand of Sennacherib the king of Assyria."

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## WAS THERE A STREET OF COLUMNS IN JERUSALEM ?

By the REV. J. E. HANAUER.

IN a letter written about a year ago I called attention to a line of limestone columns, the remains, as I believed, of the ancient "agora," or market-place of the Byzantine period, and apparently still *in situ*, though enclosed on all sides with masonry. These columns are situated on the eastern side of the "Sûk el Lahamin," the westernmost of the three parallel bazaars east of the Muristan. When Dr. Robinson was here in 1852 only two of these columns were visible ("Bib. Researches," Vol. III., page 168). More than a year ago I ascertained, by a personal examination of the shops on the eastern side of the above-named "Sûk," the existence of five other columns of the same sort, to the south of, and in line with, the two noticed by Robinson, and making with them seven in all, visible at intervals where the plaster, mortar, and rubble-masonry have fallen from the walls which have been built between and around them. Immediately south of the bazaars are other fragments of columns, not however, as I think, *in situ*. Some are built into walls, and four, with heavy Byzantine capitals, support the dome of a building now used as a coffee-shop, but looking as if it had originally been intended for a little Greek church. Yet further southward in the long street leading through the Jewish quarter to the spot where, accord-

ing to Professor Hayter Lewis, the Zion Gate stood before it was removed westward (about four hundred years ago) by Soliman the Magnificent to the position it now occupies, I have noticed a good many fragments of columns.

Taking into consideration that one of the names of the present Damascus Gate is "Bab ul 'Amûd" (Gate of the Column—what column?); that in the street leading southwards from it one sees fragments of shafts and bases of columns used as building material; that at the point where this street strikes the Via Dolorosa there still stands, and apparently *in situ*, in a spot which thirty years ago was an open field, a single isolated column, which monkish tradition, not earlier, however, than the times of Brocardus, A.D. 1283, says was once part of the Porta Judiciaria; that in the same general line we meet with other columns before we reach the line of granite pillars that belonged to the buildings connected with Constantine's great church; that in continuation of the line, after passing the granite series, we come to a limestone set, of which, as above stated, seven columns are in position, not to mention again the displaced fragments seen at intervals further south, but in the same line, I would venture to suggest that like other ancient cities, Samaria and Jerash for example, Jerusalem had at one time a street of columns running through the city from north to south.

This idea of mine may or may not be correct; but, at any rate, I should be very grateful if any one reading these lines would impart some information on the subject through the medium of the *Quarterly Statement*. Do any of the old Pilgrims, in their descriptions or itineraries, mention such a street of columns as I suppose existed, or give any hints as to the existence of a street running through the city, and embellished for the greater part of its length with colonnaded edifices?

[<sup>1</sup> Some of our readers may perhaps be able to give an answer to Mr. Hanauer's question. It has been thought that the name *Bab el 'Amûd* may indicate a tradition that the *אבן טוֹעִים*, or stone from which things lost or found were publicly cried, stood near that spot. Mr. Hanauer will remember the story in Talm. Bab. Taanith, 19a, that when in answer to Hone Hamagil's prayers for rain so much fell that the people were obliged to go up from Jerusalem to the Mountain of the House, and they came to the Rabbi to pray that the rain might stop, he sent them to see whether this stone was submerged, which seems to show that it was in the lower part of the city. Bartenora states that he had found it written that the stone was *גבוה מאד*, "very high." Such a stone would not improbably be called in Arabic *'amûd*, "column." The "very lofty column" observed by Arculf "in the middle of the city, which meets one coming from the sacred places northwards," is probably now represented by the little pillar in the centre of the Greek Church of the Holy Sepulchre, though this can hardly be said to lie *northward* of the sacred places.—ED.]

## SOUTHERN PROJECTION FROM THE MASJED AL AKSA, JERUSALEM.

BY THE REV. GEORGE OCTAVIUS WRAY, LL.D.

THE publication in the *Quarterly Statement* of July last of the plan of the "Southern part of the Haram Esh Sherif," in connection with Herr Schick's Report, enables me to ask for information, which I have for many years longed for, concerning the oblong building, which measures, according to the plan, some 50 × 15 feet, and projects below the letters "Al Aksa," from the main building at the extreme south; it is distinguished by the shading of the walls from the figure in faint outline about 55 feet to the west of it.

It may be premised that the visit to the Holy Land of H.R.H. the Prince of Wales, in 1862, led to the relaxation, in some measure, of the rules of the Turkish Government, which had previously excluded all but a favoured few from the Temple inclosure.

My late brother, the Rev. William Mark Wray, R.N., was then chaplain of H.M.S. "Doris," which escorted His Royal Highness on his tour.

In the following year, on my own visit to Jerusalem, my brother warned me against the trouble to be expected, judging from his own experience, in visiting Al Aksa.

Turning to my journal I find that upon the 24th of March, 1863, having, on payment of the fee of 10s., obtained from our Consul, Mr. Moore, an order to visit the Temple area, I attended, with my dragoman Michel Hene, punctually at six in the morning, being cautioned not to stay after seven, when the faithful were expected, and it was not safe for infidels to linger.

We waited some time for the Consular dragoman, and when he arrived it was deemed *infra dig.* to start without the cavasse, with his pompous silver staff, like that of a drum-major. But as I refused to wait any longer we started without him, and he afterwards joined us in the inclosure, looking much ashamed of himself.

The venerable Temple Sheikh had already taken charge of our party. Being unincumbered with fellow travellers I visited every hole and corner of the place; I had no difficulty with the Sheikh, so soon as he found that I was resolute and in high good humour with him.

After seeing the Dome of the Rock and as much of Al Aksa as is above ground, we went down to the lower regions, or crypt. Being built on the southern slope of the hill the northern part of this crypt is underground, but the opposite end emerges into daylight.

As the old man, contrary to his nature, hurried over the ground, I

assumed an air of Oriental phlegm. My brother had advised me to explore the south-west corner, as that had not yet been done. But on coming to the continuation of the crypt under that part of the building named on the plan "*Al Baka'at al Baidha*," our further progress was barred by solid masonry filling the archway.

Turning back I observed, at the right-hand corner, the top of an archway, just visible by a faint glimpse of daylight over the heap of stones and rubbish which blocked the passage. The Sheikh violently protested against my exploring this: no one had ever done so, as it was guarded by Jins, and Michel added his entreaties. But I assured them that the Jins would not hurt me; and having wheedled the old man out of his candle, scrambled over the heap of stones and rubbish till I reached the outer building. This I found to be long and narrow, divided into two chambers, shown on the plan to be—the northern 35 feet, and the southern 15 feet in length, both of them 15 feet wide.

The western wall of one of these chambers—if I rightly recollect, it was the larger one—contained an arch, which was walled up with solid masonry. Whilst examining the building the Sheikh and the dragoman were shouting out their entreaties for me to return, but I had our one candle, and was safe from pursuit. The only daylight was from an opening to the east, pierced, I presume, as a doorway, but obstructed with rubbish. As my eyes adapted themselves to the dim light I found a number of large white marble slabs, beautifully carved with arabesque or Jewish tracery, which had probably formed part of a cornice.

The old Sheikh by this time showed signs of frenzy, and as I had, so far as I was then able, satisfied my curiosity, I returned to the crypt, and saw the rest of the place; but found no other entrance to the vaults or cloisters at the south-west corner than those walled up. I have an impression that these were called "*The Crusaders' Stables*," and that they are shown on the map which was published for M. Pierotti by Kœpelin, 17, Quai Voltaire, Paris.<sup>1</sup>

Having but partially satisfied my curiosity on the spot, I now seek to do so fully by asking Herr Schick, or any other of your readers acquainted with the site, to say:—What was the cause of the jealousy shown against access to this part of the building in particular? what was the use or purpose of the projection from the main building which, aided by the plan, I have described? into what did the doorways which were walled up open westwards? what does the figure signify which is drawn in outline to the west of the building in question? are the marble blocks still there? what can be told or conjectured of their history; did they form part of the building to which the pillars belonged which are

<sup>1</sup> The Crusaders' "*Armoury*," not "*Stables*," on Pierotti's plan is the chamber marked on the Ordnance Survey plan *al Baka'at al Baidhá*. It is now commonly regarded as the former refectory of the Knights Templars.—ED.

described in *Quarterly Statement* for 1871, page 176? is the mass of rubbish removed which blocked the arch opening from the crypt into this building by which I entered?

Any other information bearing on the subject will be of interest.

## DINHABAH.

### *A New Identification.*

BY THE REV. HENRY GEORGE TOMKINS.

WE are able to add a new identification to those on the east side of the Jordan with some confidence of its correctness. It has emerged out of a correspondence in the *Academy* some half year since in which the important place Tunip, or Dunip, now Tinnab, or Tennib, very near the ancient Arpad (Tel Erfad), in Northern Syria, was in question.

A remark by Mr. Howorth on its etymology led to a short letter from Dr. Neubauer (*Academy*, March 14, 1891, p. 260), as follows:—

“Oxford, March 9, 1891.

“Whether Tunip is Semitic or not, it seems to me to represent the name of the locality mentioned in Gen. xxxvi, 32, as דִּנְהָבָה, Dinhaba, the residence of Bela, the son of Beor, who reigned in Edom. This king is probably identical with “Balaam, son of Beor, of Pethor, which is by the river of the land of the children of his people,” Numb. xxii, 5; *Variorum Bible*, “of the children of Ammon.” Balaam was, according to Deuter. xxiii, 4 (5), of Pethor, in Aram Nahraïm, or Naharina (A. V. Mesopotamia). It is most likely that Dinhabah was not a locality of Edom in the restricted sense, unless the dominion of Edom extended in Balaam’s time to Aram Nahraïm or Naharina. The list of the kings of Edom (Gen. xxxvi, 32 to 40) seems to point to rulers who were not of Idumean origin. In Numb. xxxi, 8, and Joshua xiii, 21, Balaam is put to death, together with the princes of Midian and Sihon.

“A. NEUBAUER.”

This interesting letter drew from me one in the *Academy* of March 21, p. 284, to the following effect. It appeared to me—1. That Dr. Neubauer was right in identifying the *name* of Dunip, or Dunipa, with Dinhabah, lxx Δενναβά; Vulg. Denaba; but, 2. That the latter must be a different place, viz., Thenib, east of Ele’aleh, west of the great Hajj road, described by Canon Tristram (“Land of Moab,” p. 222). “The buildings of Thenib cover the whole area of an isolated hill, and are much more dilapidated and ruder than those we had recently been visiting [at Kustul,

one hour south]. From Thenib and from Kustul I had the finest views of the Belka, as the country is officially called, which we had yet enjoyed.' Such is Dr. Tristram's account. The name he gives is as good as identical with the North Syrian Tennib, ancient Tunip of the Egyptian records and the Cuneiform tablets found at Tel el-Amarna.

In the new map of the Palestine Exploration Fund, with ancient names given, I find the place marked as Hodbat et-Toneib, but without identification of any ancient site.

It is only some dozen miles eastward of the old Pisgah, Nebo, &c. The way in which the name travelled across the Euphrates is shown by Franz Delitzsch ("New Comm. on Genesis," Eng. tr. ii, 248):—"Kuenen notes besides *Δαβαβά* in Palmyrian Syria (in Ptol. and in Assem. 'Bibl. Or.,' iii, 2), *Δαβάβη* in Babylonia (in Zosimus, 'Hist.,' iii, 27): *Dannatia* and *Dannaba* in Moab (by Jerome on this passage testified in Lagarde's 'Onom.' 114 sq.)."

I think this is a clear and good case of identification worthy of insertion in the map, and in the next edition of Mr. Armstrong's very useful and valuable book, "Names and Places of the Old Testament."

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